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Forest/People

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FOREST/PEOPLE

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by
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ABSTRACT

The Clemson Experimental Forest (CEF) is a 17,500-acre forest surrounding and owned by Clemson University. Loved by many, it is a working forest managed for sustainable timber harvest and used to provide a laboratory for teaching, research, and demonstration based on its affiliation with Clemson University and its charter through the New Deal. The Clemson Experimental Forest is a setting for recreation and re-creation by those in the greater Clemson community and the Upstate of South Carolina. As the population in the Southeast United States grows, so too do the impacts and pressures on natural areas. The CEF is experiencing these challenges, which are exacerbated by a poor understanding of the forest's mission and purpose among a variety of interest groups that use the forest. The intended purpose and uses of the forest were developed in the 1930s. Since then, Clemson University and the pressures on the forest have grown in both size and complexity, but the mission and purpose of the forest have not been altered to reflect these changes. To better align the mission of the forest with current needs and resource management strategies, it is important to examine current perceptions of the mission, particularly among leaders who are responsible for managing the resource. This research attempts to identify the purpose of the forest as defined by contemporary decision leaders and analyze the leaders' viewpoints in light of the legal statutes defining the system, the opportunities and threats to the system, and ethical implications. Data for this research came from interviews with decision leaders related to the CEF system, document and artifact analysis, survey data, and comparative analyses. The approach was that of being an embedded researcher, meaning that I was involved in regular meetings related to the CEF, developed professional relationships with decision leaders and other sources of

information and spent time weekly in the forest for the research period. Data were analyzed inductively to develop an understanding of the definition of the system through the lens of transformation, deductively through the lens of three theoretical frameworks, and finally through the lens of critical inquiry to understand the ruptures of normativity and help ethically integrate management decisions with the identity of the system over the long-term. Findings indicate 1) that there is not alignment with how the purpose of the forest is perceived and acted on, and the differences have had consequences over time, 2) Because of this lack of alignment there are major limits to the system that are diminishing the system, 3) There is a limited view of the relevance and meaning of the landscape temporally, intellectually, and, spatially and 4) this limited view affects the relevance and impact of the place to the Academy and the citizens of South Carolina. This research is an examination of what it would take for decision leaders and the community to innovate within the system and increase the capabilities to respond to adaptations at multiple scales. Providing for a variety of services along a spectrum of biodiversity protection to revenue generation, a natural area like a university forest provides significant values to a community and it is the aim of this research is to identify and understand these values using the CEF as a model system.

DEDICATION

This work is dedicated to the Smooth Coneflower, Georgia Aster, Red Wolf, Florida Panther, Red-Cockaded Woodpecker, and all the rest of the species of plants and animals on our planet who have had their existence threatened in a variety of ways. It is also dedicated to all the people who work to help them – and all of us – through their own creative expressions of self.

ACKNOWLEDGMENTS

None of this would have been possible without the funders of this work. Dr. George Askew, the Vice President of Public Service and Agriculture, has been a support in so many ways. In addition to providing funding for this research, he opened his schedule to me monthly to discuss the project and I'm grateful for our illuminating conversations, his guidance, and support. Also, Dr. Patrick McMillan, the former Hilliard Professor of Forestry in the College of Agriculture, Forestry, and Life Sciences and the former Director of the Clemson Experimental Forest was instrumental in providing funds, access, and direction at several key stages.

I also would have been lost if it weren't for the close working relationship with the University's Land Asset Committee consisting of Laura Stoner, Russell "Russ" Hardee, Barret "Barry" Anderson, and James Wilkins. It's a gift to enjoy the people you work with and I am grateful for their support and encouragement.

My doctoral committee has also taught and guided me in unexpected ways that I know will take decades to fully appreciate as I continue to learn daily from what they have imparted. The committee consisting of Executive Vice President for Academic Affairs and Provost Dr. Robert "Bob" Jones, the Alumni Distinguished Professor of Wildlife Ecology Dr. J. Drew Lanham, and Dr. Wayne Freimund, Professor of Recreation Resource Management at Utah State University-Moab, have taught me forestry, systems, natural resource use, ethics, and so much more. I value the guidance, patience, and knowledge more than I can express.

My committee chair deserves special recognition and the past several years of my life and career's focus has been dramatically shaped by the influence of Dr. Elizabeth "Betty" Baldwin, Associate Professor of Parks and Conservation Area Management. It is impossible to overestimate her capacities as a mentor. Through her incredible patience, wisdom, and brilliance, she persevered over my stubbornness and ignorance and trained me to be a scholar, a better conservationist, and, most importantly, she taught me to be a better human. Her lessons have proven to be unexpectedly profound, and I hope to live up to her example and teachings.

When you spend so much time with land, the stories of the natural history and the cultural evolution unfold in front of you constantly. I feel like I have barely scratched the surface of these stories but none of this would be possible if it wasn't for the slowly eroding Appalachian mountain range, the extinct saber-tooth cats and mammoths, and the first people to call this place home. More recently, my gratitude extends to everyone who lived and worked this land that we know of through the orthodox histories but also the stories of those that have yet to be fully appreciated and integrated: those of the Cherokee Nation, the captured Africans, and the destitute.

Finally, I appreciate all my friends and family who have been so encouraging these last few years. At the risk of excluding anyone, I will refrain from including anybody. You know who you are, and I look forward to creating future adventures and protecting more playgrounds with you. And to those who may read this in the future: may your research and interest in our shared ecology, for the sake of protecting species and land while empowering communities to express themselves exuberantly, be at least as meaningful and rewarding as mine has been.

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PREFACE

In December 2020, I had completed the first draft of this dissertation after a tumultuous year. Starting with the devastating fires in Australia in January 2020, the COVID-19 pandemic that shut society down in March, the eruption of social justice protests in the summer, and the turbulent United States (US) presidential election of November, the country would go on to experience an attempted coup of the federal government in January 2021 before the new president was sworn in. But it was in December that I decided to reflect on my first draft and the entire experience of studying a forest in the US Southeast by visiting Montgomery, Alabama and the Civil Rights Museum, the Rosa Parks Memorial, and the National Memorial for Peace and Justice. It was there that much of the history came alive in new ways and informed an important explanatory component of my experience: the land and the people are inseparable. It was through Dorceta Taylor that I learned that American history is environmental history (2016), but it was not until I visited the Equal Justice Initiative's heart-wrenching and powerful memorial for victims of lynching in the US that I came across Bryan Stevenson and his work. It was the mix of emotional poignancy and Stevenson's unambiguous words posted at the memorial that my entire 3-year project of studying the combination of people and nature came into focus: "The opposite of poverty is not wealth. The opposite of poverty is justice."

The pandemic, the civil rights efforts, reforestation, biodiversity and land protection, funding conservation, and all the interconnected components of the global system are about justice and understanding what that means and for whom. The work that

follows is an attempt to understand what that means in the system of a university forest and the community that lives intimately alongside it that shares in the interwoven story that plays out over generations. It is hard to not envision this entire project as simply an exploration of the bumper sticker saying "Think Global, Act Local" but in many ways that is exactly what it is. This Forest has become a home and a home has value in many ways that blur the line between utility and intrinsic value. It is important in and of itself, not because of what it can give to people. But it also does give to people and it does have utility. Echoing Stevenson's quote, one of the Cherokee Nation members that I interviewed spoke to exactly that blurring of the line: "No self-respecting Cherokee is without a corn patch…if you can understand this, you can understand the relationship to nature."

Further, there is also much about this system that can help us think through globally relevant issues of human and nature interactions, let alone mutual flourishing or exploitation. Seeking to understand this system better is an exercise in learning about a community's home and I've tried to not forget that throughout this project. As Stevenson reminds us, it is also about all the myriad expressions of justice, and how a simple university forest system can contribute to representation, access, reconciliation, discovery, and abundance of the human and nonhuman. I try to not forget that either and I hope that the following work will make meaningful steps toward that goal.

CHAPTER ONE

INTRODUCTION

Every wild place and natural area is touched by people. Some of those people are part of the history, some hold decision-making authority, some we call users, and others may just be in love with the place. It is a nexus of disparate people, some seen and some unseen. One such place, the Clemson University Forest, adds elements of research, teaching, and a transient population to the system.

The Clemson Experimental Forest

The Clemson Experimental Forest (CEF or Forest) is 17,500 acres of reforested habitat. Largely, degraded from more than a century of cotton plantation and slavery agriculture, the land was mostly denuded in the early 20th century, an “ecological scar tissue” as one interviewee calls it. A process of consolidating over 200 cotton farms for the sake of restoring a forest began in the 1930's and by the end of the 20th century Clemson University (CU) had a robust, managed forest full of valuable timber and biodiversity. This task was the vision of a Clemson College (now Clemson University) agriculture professor named Dr. George Aull. Listening to President Roosevelt describe the proposed New Deal in the Fireside Chats in the early 1930s, Dr. Aull envisioned the transformational potential of resettling farmers who were barely surviving on over-exploited farmland (Maddox, 1937). With an intention of eventually having Clemson College manage the forest, the resettlement of farmers, the purchase of the land, and the initial planting of the forest was the responsibility of the federal government. As the CU Faculty Senate Report (2021) details:

"Aull's original focus was a grouping of farms that collectively were an 8,000-acre parcel in the Fants Grove area, now called the South Forest (Crunkleton, 2012). Federal officials deemed the Fants Grove proposal too small for a federal project (Sorrells, 1984). Aull then expanded the request to over 30,000 acres adjacent to Clemson College. This proposal was accepted and in 1934 an effort was made to begin buying parcels of land. The aim was both to help families in the region and have a laboratory for restoration of worn out "lands of the cotton belt" landscape and transform this land to healthy research forests and farms. Another goal of the project was outreach and demonstration for faculty, students and the community "to fill the social and economic needs of people in the region" (USDA & Clemson College, 1938)."

In the early 1930s, the Upstate of South Carolina was a barren moonscape suffering from eroded topsoil, flooding and drought cycles, deforestation, erosion gullies exposing bedrock, and a scarcity of wildlife and game. Soil conservation and the attempt to pull the larger community out of poverty was the motivation for the creation of the Forest in the 1930s, following national trends of the New Deal recovery and mitigation of the dust bowls plaguing agriculture areas. Initially called the Clemson College Land Utilization Project or elsewhere referred to as the Clemson Community Conservation Project, Dr. Aull led the federal government's purchase of 206 parcels of farmland totaling 29,665 acres (Sorrells, 1984). With help from Roosevelt's Works Progress Administration (WPA), the Civilian Conservation Corps (CCC) hired over a thousand men and "set up camps in the area and workers planted native trees, built recreation sites, roads and bridges and ultimately the dam creating Lake Issaqueena and the recreation

sites in the area now known as the North Forest" (CU Faculty Senate Report, 2021). These New Deal efforts opened the land to recreation, returned biodiversity, created educational and research opportunities for Clemson College, and allowed land managers to consider timber harvest as a viable alternative to cotton as the timber industry in rest of the US Southeast was slowly developing. These soil conservation and community development efforts transformed the land (see Figure 1), allowing for new opportunities to exhibit their potential. It just so happens that the commercial conditions were right for timber to have the highest financial potential.

Figure 1. "Preparing Roadside and Stream Bank for Kudzu Planting, 1940." Photograph from the CU Library Archives

With the land in the early stages of the transformation, people began visiting the streams and ponds to picnic in shady climates created by the young trees. These trees began to grow and as they did, so did the timber market in the Southeast. The opportunity became more apparent, and management of the Forest began to be driven by timber harvest demands in 1946 when Norbert Goebel was hired by the Department of Botany. The Clemson College president at the time, Dr. Poole, coming back from a visit to Duke University, directed Goebel to manage the forest for timber. With the land transformed after Dr. Aull's initial work, "Goebel started timber inventories in the new forest and the re-introduction of White-tailed deer and Turkey to the area, and he worked with Dr. Koloman Lehotsky to start a forestry curriculum. The effort to make this area an experiment station in partnership with the USDA and the United States National Forest Service failed, but the name Clemson Experimental Forest got its start" (CU Faculty Senate Report, 2021).

With the new focus of the Clemson Experimental Forest, CU was able to expand and grow from the responsibilities of the Botany department. A new forest manager, Marlin Bruner, started in 1954 and in addition to managing the harvest, "Bruner was instrumental in the creation of a variety of reclamation and conservation projects on these lands as well as instructing Clemson students" (CU Library Archives). This was a time for adaptation for both the land and CU that would shape the next sixty-six years:

> *"In 1955 the federal government released the land that is now called the Clemson Experimental Forest (CEF) to Clemson through an act of Congress (Public Law 237, August 4, 1955). Two years later the Forestry Department began at Clemson and took over the management of the*

> *Clemson Experimental Forest. In the 1980's the CAFLS [College of Agriculture, Forestry and Life Sciences] Dean directed the management of the forest, but the directive still came from the Forestry Department (Sorrells, 1984). Currently, the CEF falls under Clemson University Public Service and Agriculture (PSA). Since 1946 the forest has had a forest manager, the first one from Duke, the second from Yale, and since the late 1960's all forest managers have been graduates of the Clemson University Forestry program. Their goal has always been a sustainable timber management program that provides income to support the operation of the CEF" (CU Faculty Senate Report, 2021).*

It was also around this time, in the mid-1950s, that Lake Hartwell and Lake Issaqueena were created. What previously were areas for the headwater streams and small rivers for the larger Savannah River leading to the coast approximately 300 miles away, dams were built, and the area was flooded. The creation of these lakes absorbed about 10-thousand acres of newly forested land, constrained the upper Savannah River tributaries, buried the remnants of a long unoccupied Cherokee village, and changed the landscape.

These lakes are integral features of the land now and the Forest approaches the shores wherever there isn't development. The Forest has mostly remained like this since the late 1950s with approximately 17,500 acres separated into two sections surrounding both the north and south sides of CU (Figure 2). The two sections are distinct, as the North Forest is in the lower Blue Ridge foothills, while the South Forest is in the Upper Piedmont ecological zone. In addition to this ecological diversity, the proximity to CU campus makes it notable among other university forests and government research

stations, providing research and educational capacities. Seen holistically, the Forest "is managed for timber sales and production while providing a laboratory for scientific research, an important field classroom across all colleges of the University, and an amenity of high value for the Clemson University community and the Upstate of South Carolina" (CU Faculty Senate Report, 2021). Additionally, as new anthropological, archeological, and other cultural research progresses, the Forest is increasingly being recognized as a part of the narrative of the Cherokee Nation, enslaved people and captured Africans, convict and child labor, displaced and impoverished farmers, and others that have been not adequately recognized or acknowledged in orthodox histories.

Figure 2. Official Map of the Clemson Experimental Forest

CU research demands became an equally important justification of use since the implementation of the Management Alternative Research Project (MARP) in 1978. Until the mid to late 1990s, purposes of the CEF other than timber with associated research and education occurred scattered throughout the Forest. Simultaneously, beginning at the turn of the millennia, the rural community around Clemson began to grow in population and demographics, newer industries moved to the Upstate, and sprawl development increased along the Charlotte to Atlanta corridor. In the Forest, timber continued to drive management decisions, but unsanctioned trails were increasingly built which invited new recreational use. This multitude of values and management concerns continues today, placing novel challenges on administrative decisions. For instance, the most recent Forest mission statement (Clemson Experimental Forest, 2021) addresses many values and does not reference timber harvest directly:

> *"The prime directive for the forest is to be a well-managed, self-sustaining, ecologically healthy, living laboratory, classroom and recreational resource for the benefit of the university, commerce and citizenry of South Carolina, vouchsafed with a mandate to protect and promote in perpetuity the forest as an irreplaceable educational, environmental, scientific and social asset."*

The Forest also exists as part of CU campus. The interdependent relationship between the Forest and the university is easy to identify in some ways and more difficult in others. Additionally, the Forest and campus exist within the greater City of Clemson community. The boundaries of the campus blur when this is viewed holistically, and the

campus becomes more than the 800 acres of buildings, plazas, and ponds; it becomes 20,000 acres of trees, waterfalls, trails, lakes, farms, classrooms, and laboratories. It is within these acres that the campus community may be conducting research, teaching or taking a class, racing a mountain bike, hunting turkey, or on a trail with horses and the rest of the extended Upstate South Carolina community. It is in these interactions where the CU community connects with the City of Clemson community. There, they will meet an emeritus professor or a local entrepreneur. The forest brings people together and has the capacity to provide restorative experiences through conducting sport in nature.

This Forest exists in many scales and through many perspectives. It is part of the community, it is a place of revenue, but it is also a university forest. As the CU Faculty Senate Report identifies (2021):

> *Many colleges and universities own forests. These include public and private institutions and two-year colleges. Most schools own the acreage themselves and in a survey of forestry programs the average holding is 6,185 acres, however, three schools have holdings of over 20,000 acres each (Universities of GA, MT and SUNY-Syracuse) (Burkhardt and Straka, 1988). Most school forests are in the eastern United States and about half of them are near their home campus. Most of them are linked to forestry programs and note the primary objective of the forest as research, teaching, field instruction and demonstration (Straka, 2010; Coleman et. al. 2020). The early forests established in the late 1800's and early 1900's (Cornell, Syracuse and Harvard) all included benefits to the greater community in the mission and purpose statement of the forest. This framework for including teaching, research, demonstration as well as community enhancement values carried over to mission statements of school forests that followed. In the mid-1990's an effort by some schools to develop portions of their*

forestland created unanticipated "public outcry", making known the community value of these assets (Straka, 2010). This outcry has extended to timber harvesting, the primary way most forests generate income for their own operations, and started a discussion related to other ways to monetize forest assets. Some Universities are now charging for recreational use and providing more services for that use, while working to maintain the value of naturalness desired by long-term research interests, as well as adjacent communities for amenity and recreation purposes. Finally, there is an effort to understand the racialized landscapes that make up university lands and forest areas, the profits from indigenous lands, slave labor and tenant farmers, and the representations of that history such as cemeteries and ancestors (Lee & Ahtone, 2020).

Land-grant university forests comprise over 300,000 acres of forest land in the US (Burkhardt et. al. 1988; Straka, 2010). Close to half of these are within an hour of the home University, and as Straka (2010) and Coleman et. al. (2020) note these areas are being accessed and used for outdoor recreation and restorative experiences in growing numbers. University forests are not typically identified as part of campus or community wellness and little is known about the values associated with different uses (personal communication with The National Association of University Forest Resource Programs-NAUFRP, 2020). The CEF, like many of these forests, is not actively managed for this wide variety of uses, and there is little data regarding the impact on these communities, or the forest itself. There are financial assets to this system as well as elements of human flourishing not documented or measured that have an impact on personal wellness, academic wellness, and intellectual growth.

As we enter the third decade of the 21st century, the area around Clemson and the CU student body, has grown substantially. Management of the Forest has tried to accommodate these changes in a variety of ways. The main method has been 'putting out fires' or reacting to concerns as they arise, with little to no funding derived from non-timber activities, and also pulling the attention of land managers away from timber activities. The consequent impacts of this growth have exhibited themselves on the Forest in various ways. To address these changes and challenges, several paths have been recommended, including protection as a state park, financial contributions to create an endowment for the Forest, and focusing on recreation management. These all have worthwhile merits, but each is an expression of 'parts-thinking' that is a further extension of 'putting out fires.'

Early in the research, this problem was addressed as the challenge of responding to "little 'e' ethics" at the expense of the "big 'E' ethic," meaning that the values and perceptions of the CEF between decision-makers, recreationalists, community members, the university community, and more, was not in alignment. For the sake of understanding the "big 'E' ethic" a little better, asking 'what is the purpose of the CEF' when interviewing people within the system, examining information from documents and artifacts, and in field experiences within the Forest, guided the entire process. Further, it is with this question in mind that explanatory frameworks and critical theories were consulted.

What started out as an exercise in valuing a coupled nature and human system (CNHS), eventually added critical inquiry, involving important social justice

components. This was never the intention, but also an aspect that could not be ignored as it was intricately interwoven in the fabric of this system. This inquiry meaningfully informed the rest of the research, however, and contributed to a more complex understanding of the Forest that has been missing from other narratives.

Organization of the Dissertation

The title of the work hopes to capture the ideas of the intricacies of the system: Forest/People. Chen and Liu (2014) show that a CNHS "provide an integrated scientific framework for understanding the processes and complex interactions between natural and human systems" and it is the "complex interactions" that Forest/People attempts to elucidate. The slash in the title is meant to do three somewhat paradoxical things, following Derrida (1976): First, like a computer file tree, it is meant to remind us that the forest comes before the people. Second, it is meant to position the natural environment appropriately, as in Earth First!'s statement "there is no system but the ecosystem" (Tsolkas, 2015). Lastly, the slash is also used "to erase the boundaries (the slash) between the opposites and to show that the values implied by the opposites are not fixed but socially created and constructed" (Hendricks, 2016). It is with this deconstruction that the system is identified and the approach to research positioned.

Drawing further on postmodern thought, it is through Foucault that the organization of this work is presented, somewhat unintentionally. As the ordering and explanatory structure of the document evolved, it became clear that Foucault's *archaeology*, *genealogy*, and *ethics* was being followed. Packer (2011) explains Foucault's recommendation for social inquiry best: "First is an *archaeology*: a form of

investigation that excavates not bones, pottery, and metalwork, but official theories or concepts. The second is *genealogy*: tracing the family tree of these official pronouncements to write histories of the present that treat historical change as contingent, marked by ruptures and discontinuities. The basis of official knowledge (*connaissance*) must be explored in the power relations (*pouvoir*) of practical activity (*savoir*). The third aspect is an *ethics* that focuses on the techniques for formation and care of the self" (p. 13, italics in the original). As the writing progressed, it made more sense to reverse the first two and what results is a genealogy, archeology, and ethics, or: what is (chapter 2), what could be (chapter 3), and what should be (chapter 4). Chapter 5 becomes an extension of the ethics chapter and takes the lessons learned from this system and reflexively and recursively examines the telos of conservation.

As an inductive qualitative project, this research was not attempting to test a hypothesis but rather trying to understand a system, much like a 19th-century naturalist explored a habitat. As such, the rest of this chapter explores the role of the researcher in the data collection and analysis. Chapter two examines the purpose of the Forest within a transformation framework. This purpose is then contextualized along spatial and temporal scales in chapter three, with an attempt to operationalize the transformation. The ethics and ontology of interventions and normative perspectives within the Forest is explored in chapter four and the combination of all these concepts is carried into a larger discussion about conservation practices in chapter five. Seen as a whole, these five chapters attempt to understand the system made of the forest and the people. What results is a recognition that what is considered to be normal and natural is actually constituted,

oftentimes for completely understandable reasons, but still created. It is this recognition of a constituted normativity that the purpose of the Forest is examined.

Role of Researcher

As a graduate student for Clemson University, paid through an assistantship and a fellowship through the University, who works regularly with the CEF management team, is active in local community events, and regularly accesses the study site, I am an embedded "complete participant" (Creswell, 2013, p.166). Packer (2011) identifies this as being a "member" and here I use the term "embedded researcher" as he does. To bound the system and best communicate the need for research through active participation, developing multiple sources of information to "provide depth to the case" (Creswell, 2013) is necessary. There are several "sources of information" that I have participated in since September 2018 and these include: attendance at monthly CU Land Asset Committee meetings, a summer internship with the CU Land Asset Committee, assistance with monthly nature walks hosted by the South Carolina Botanical Garden, attendance at community group events (i.e. Green Crescent Trail meetings), assisting with Dr. Motallebi's Carbon Market workshop, discussions with local stakeholders and experts, and participation in the inaugural Call My Name Walking Tour of the CU campus to explore the underacknowledged histories hosted by Dr. Rhondda Thomas's initiative on February 29th, 2021. Additionally, weekly field work within the Forest occurred for the purpose of knowing the site and having that direct experience. The activities that occurred were hiking all of the approximately 105 miles of mapped trails over about 66 different field days, recreating the Bartram trail by walking across the

entirety of the Forest over two days and covering 22 miles, taking about 1,754 photos of site conditions, informally talking to as many Forest users as I could, and picking up trash as I walked. Table 1 identifies the full list of tasks as an embedded researcher.

Table 1. Involvement as an embedded researcher

- Interaction with CU system
  - Graduate student of CU
  - Funded by PSA and the Hilliard fellowship
  - Provost of CU on my doctoral committee
  - Participated in 11 CU Land Asset Meetings
  - Assisted with Dr. Motallebi's Carbon Market conference
- Resident of City of Clemson, within a mile of both CU and the CEF
- Participated in several community meetings
  - Attended Green Crescent Trail meetings
  - Attended City of Clemson meetings
  - Attended The Joint City-University Advisory Board meetings
  - Attended OLLI meetings
- Formal and IRB certified research
  - Interviews of social actors
  - Surveys of CU faculty
  - Surveys of CEF users
  - Artifact discovery and analysis
- Classroom-led research
  - Recreation inquiry of horseback riders and mountain bikers
  - ArcGIS Survey123 survey
- Field Experiences
  - Hiked all mapped trails at least once
    - ~ 66 outings
    - ~105 miles of recognized trails
  - Bartram Trail
    - 22 miles
- SC Botanical Garden
  - Attended several SC Native Plant Society classes
  - Helped with full moon nature walks
- Shared experiences
  - Defenders of Wildlife writings
  - 1754 Photos

For almost three years, I have worked closely with my advisor, Dr. Elizabeth "Betty" Baldwin, and her Conservation Social Science lab. This research was initially posed when the funders of this research, Dr. George Askew, the Vice President of Public Service and Agriculture (PSA), and Dr. Patrick McMillan, the former Hilliard Professor of Forestry and the former Director of the Clemson Experimental Forest, discussed the assets and valuation of the Forest with the Director of Clemson University's Office of

Capital and Land Stewardship (OCLS), Laura Stoner. Through the lens of the OCLS, which is responsible for all CU real estate, the Forest is assessed through three assets of timber, agriculture, and development. They recognize that other assets exist, especially pertaining to the mission of the university, it is just unclear how to understand them or integrate them into the valuation. Similarly, through the PSA lens, which is responsible for maintaining the budget and managing the Forest, the purpose of the Forest is seen through the perspective of PSA: research, teaching, and demonstration. Being a student in Conservation Area Management in the College of Behavioral, Social and Health Sciences allowed for me to understand that some only see the Forest through the lens of a recreation plan, or some other parts-based approach, to solve management needs or address dilemmas. Additionally, there are other layers of meaning attached to the forest, including: the covenant between CU and the Federal government (through various regulations), how the Forest is perceived and accessed by a variety of user groups, the role that a contiguous natural area in an increasingly developed region has to environmental services, the understanding of heritage and conflict histories, and the connection and responsibility to the academic community.

Reflexivity Exercises

Creswell says that "…qualitative researchers need to "position" themselves in their writings. This is the concept of *reflexivity* in which the writer is conscious of the biases, values, and experiences that he or she brings to a qualitative research study" (2013, p. 216, italics in the original). This "positioning" is accomplished by regular reflexivity exercises to understand how personal and past experiences with the object of

study shape perception. This is an evolving process, where personal bias is seen less as "bad" than as something to work with, in relationship to the research. The rationale is that every researcher has bias, and it is impossible to remove it completely. However, the acknowledgement of this bias helps identify it and how it may manifest throughout the research.

My reflexivity exercises occurred often but irregularly throughout the research, as the need for reflection arose. In collaboration with my routine of maintaining an audit trail of research (Wolf, 2003), the habit of regularly examining collected data against other data, the explanatory structures, and my own perceptions were integrated into the research. The iterative process of reflexivity exercises was checking the data against my own biases and thoughts which allowed for new discoveries. For example, as will be explored further in chapter 4, three important reflexivity exercises directly led to a critical inquiry of ethics. Additionally, as shown Appendix A, one of my reflexivity exercises eventually resulted in an article written for the Defenders of Wildlife.

Sometimes these reflexivity exercises occurred as part of regular meetings with the forest manager or monthly meetings with Dr. Askew, the Vice President of PSA. Often these exercises occurred as journal entries or in discussions with Dr. Baldwin or her lab. As a fun sidenote, the most regularly accessed and helpful reflexivity exercise was keeping a 10-foot-long sheet of butcher paper taped to my office wall where I drew a timeline of the research with my notes and thoughts scribbled in sharpie. Throughout the following document, I attempt to identify my reflections, but it is clear from the above discussion of the Forest/People title that my bias is in identifying the primacy of the

environmental system. My bias is in valuing and protecting the environment first and recognizing that the social system derives from but also in relationship with the environmental system.

Study Limitations

There are several limitations and threats to validity in this study. My own biases, limitations to data collection, and the ethical implication of this research have the potential to impact the project. Regarding biases, my concern and values for biodiversity conservation may influence my questions and interpretations of the interviews. My values of biodiversity, conservation philanthropy, and the potential of the visual arts (i.e. photography, conceptual designs, etc.) may skew my perspective and directly impact my research and interview questions. My own biases value minimal development involving destruction or removal of natural habitat. Additionally, I am also an outsider to the region and there may be unknown implicit values that I carry that may be unconsciously challenged by participants. Lastly, as an embedded researcher who actively works with the CEF management team, is compensated by Clemson University with the research critical for me receiving my doctorate, and lives within the region impacted by the CEF, I may be influenced – knowingly or unknowingly – by the process and results of the research. These limitations are significant and ethically challenging and the importance of triangulation strategies of inter-rater reliability, regular reflexivity exercises, and review from sources outside of the Clemson system have been utilized.

The limitations to the actual data collection were more logistically challenging rather than foundationally. First, I assumed that I could use artifact analysis, surveys, and

interviews to socially co-construct a comprehensive narrative. Second, collecting data of gatekeepers and experts for potentially sensitive issues may have motivated interview participants to withdraw or refrain from full disclosure. Similarly, participants may have purposefully misled my data or interpretations for their own purposes. Finally, collecting artifacts may not have revealed accurate histories of the land, the data from interviews may not be valid, and the discourse may unknowingly be an exercise in confirming the groupthink of stakeholders. These activities were attempted to be verified through different triangulation strategies.

The strongest limitations are ethical concerns fundamental to researching land and conservation. Primarily, the morality of interjecting decision-making in the processes of the natural world is of greatest concern. A responsibility is inherent as any decision carries repercussions that will disenfranchise some party, be they human, faunal, or floral. This disenfranchisement may include anything from the redirection of resources away from a recreation use to the active, lethal management of species. While this research is systems-based, necessitating perspective-taking from all sides, my bias stems from an active Deep Ecology perspective (Naess, 1973). Also of ethical concern is how people will view my participation in the research. While my biases may be with conservation of natural resources, I am researching an on-going case study and while it is important to not be perceived as an advocate of a particular path prematurely, the data identifies clear conservation issues. Throughout the following document, I address these limitations in each section.

CHAPTER TWO

TRANSFORMATION

Introduction

All forests have people seen and unseen, some with agency and others with none. How then can a researcher be embedded enough to see or develop an understanding of the holistic place with laws, a mission, a history, and a truth? As time and context change for a forest, so too does it change for the people. Many forests, once protected as open space, were developed in rural America. As populations grow there are more pressures on all these open spaces and forests. School forests, mostly part of forestry programs and attached to large colleges and universities seventy to one hundred years ago, face these challenges from growing population as well.

The Southeastern United States is experiencing these changes. The region has a population of over 97 million (Southeast States, n.d.) and South Carolina specifically had a population of 5.149 million people in 2019 (US Census Bureau, 2019). Terando et al. (2014) point out that the American South is expected to grow 101% to 192% within the next 40 years, with much of the growth identified between Charlotte, North Carolina and Atlanta, Georgia. This area has been described as the Charlanta Corridor or the Southern Megolopolis and this regional trend is reflected in the change in population growth in South Carolina counties surrounding Clemson University from 2010 to present (South Carolina Demographics, n.d.):

- Growth since 2010 in Greenville County: 16.98%
- Growth since 2010 in Anderson County: 9.51%
- Growth since 2010 in Oconee County: 7.95%
- Growth since 2010 in Pickens County: 6.8%

This population growth and the subsequent development and stresses on the natural resources have impacted the university forest for Clemson University (CU), the Clemson Experimental Forest (CEF or Forest), and surrounding community. The CEF is 17,500 acres of reforested habitat, transformed from degraded land resulting from more than a century of cotton plantation and slavery agriculture. The land was mostly denuded in the early 20th century, with topsoil loss, deforestation, and the people of the area victim to the caprices of flood or drought, of pestilence or unfavorable market or social conditions. With the massive resettlement and reforestation project that occurred in the 1930s, the Forest that exists today is a mostly contiguous wildlife corridor bordering CU to the north and south while hugging Lake Hartwell on the east and west.

Problem

The land has experienced many changes and what exists now is a legacy of several transformations over the last 250 years, each transformation guided by the paradigms and perspectives of decision makers working within the opportunities and constraints of their respective time periods. The situation today is no different and the regional population and urbanization growth offer new and sometimes novel opportunities and threats that decision leaders must consider. The degree to which the alignment between desired outcomes of the land, how the land is best integrated into the community, and the possible opportunities and constraints within the real world, helps decision leaders determine whether the land continues to be managed as it has been or experiences transformative change.

The post-New Deal era increase in the value of land for residential, commercial, and industrial development has steadily increased. The opportunity for development of land could provide significant one-time revenue to landowners but could "tie the hands" of those mandated to provide other socially beneficial assets with that land lost to concrete and tarmac. Natural capital and ecosystem services are the first losses to development, but each parcel of land has its own unique characteristics as well. All these assets need to be integrated into an assessment of management decisions affecting the future of land. When the land in question is owned by a nationally ranked, top-25, R-1, land-grant university in the rural South, the complexity increases to adequately manage all the assets without conflict.

Additionally, the Forest is seen by decision leaders differently, and there are various perceptions of the purpose of the CEF. Being a working university forest, it is managed for timber harvest for the sake of providing opportunities for education, research, and community enhancement but a common statement from some current recreational users has been along the lines of "my taxes pay for it, I should have access to it." Even within CU administration though, there are slightly different perspectives: some decision-makers point to the purpose of the university identified in Thomas Green Clemson's will, others to the teaching, research, and demonstration mission, and others see it simply as a timber property on public land managed for multiple uses.

Through a land asset and real estate valuation, the Forest currently has a documented value of three assets: the development asset, the timber asset, and the agriculture asset. Although the CEF's mission acknowledges other values, the decision

drivers are related to timber management and harvest for revenue generation. Furthermore, there are other assets that are not currently acknowledged or valued in official CEF management as decision drivers due to lack of data or logistical inability to incorporate the data appropriately. Another impact of the growth of the local area is that the Forest is being used by people – a lot and increasingly so. Use of the forest for education, research, recreation, and health and wellness, by both CU students and faculty as well as local people not affiliated with the school, is extensive. While some uses of the Forest are known, many are not. In some instances, even if the uses are known, resource or logistical constraints prohibit best management practices and CEF management has not integrated the demands of these uses into comprehensive future planning.

Research question and purpose

The current pressures on this forest are multiplying. Demand for use, exploitation or underappreciation of ecosystem services, financial competition with alternative land use like development, the need to protect biodiversity and act as refugia, and the academic commitments of teaching and research are just some of these pressures with few contributing revenues to management. Timber harvests still pay the bills, but with many more people on the planet, pressure on open space has seen a dramatic uptick, even in rural and semi-rural areas. Even without clear maps and signage – absent because this forest has never been oriented like a park with interpretation for visitors – users now engage with the place confidently, with smartphones leading the way. This combined with social media boosting interest has led to a forest full of well-meaning users with no understanding of the purpose of place, and an absence of a definition. With only a small

number of users this absence of definition can be absorbed by the place, but with a large and growing number of users, it can threaten the integrity of the place. Even then, the Forest can absorb many pressures with less integrity of place but continuing with the parts-based perspectives of addressing pressures independently delimits the possibility for future discovery and actualization, and cuts short innovative renewal before it can be allowed to flourish.

Prior to Dr. George Aull's transformative actions in the 1930s, the perceived purpose of the land was an evolution from a wildcrafted home of the Cherokee, then slavery agriculture benefitting a select few, and then destitute farmers receiving decreasing annual yields from the over-exploited land. Each of these was a transformation guided by the tension inherent between what is possible and what is desired, ultimately determined by how the land was valued and perceived. Once the land was consolidated with the purpose of re-forestation, it remained on that trajectory until present day, with timber harvest driving the management focus that allows for other uses, as long as these uses accommodate to timber. How the land is perceived has determined each of the historical transformations in an iterative dialogue with the strengths of the extrinsic markets and outside influences, the cost of natural resource exploitation, the potential return on investment, the ability to organize society at different scales around the intended transformation, and the desire of those adhering to the hegemony to maintain the self-perception of that paradigm. The Cherokee valued their home, the early colonists envisioned themselves as taming the land, plantation owners fought for plantations, cotton farmers maintained their identity as tough and resilient, and timber harvesters see

the forest for the trees. The values and perceptions of the land, as well as ourselves in relationship with the land, inform our choices on where we position our land management decisions.

How then is the land valued and perceived and is there alignment between these perceptions and the current mission of the Forest? To determine this, an understanding of the purpose of the Forest is derived from the synthesis of data from relevant artifacts, interviews with the system's decision leaders, surveys of the Forest users and CU faculty, inventories of the Forest, and analysis with comparative forests.

Asking 'what is the purpose of the CEF,' this research project is designed to uncover the values, beliefs, and perceptions of the people involved with the forest. With a better understanding of the "purpose, approach, and desired outcomes" (Aplet and Cole, 2010), of the varying perspectives of stakeholders, management can start to understand the system better, the shared goals of the larger community, and the needs of the region. This question is broad enough to provide multiple interpretations that can be synthesized with verified inventories of the CEF's resources but also narrow enough to allow meaning to be socially co-constructed with stakeholders and experts. This knowledge can help anticipate future challenges and navigate the pathways of transformation. For a working forest, these challenging pathways utilize socioecological systems (SES) research. Within this systems-based context, this research provides data to decision-makers planning for the future of the CEF by facilitating the ability to incorporate all of the values holistically.

Examining how the Forest is perceived and valued will better inform administrative decisions, potentially guiding management options smoothly through future transitions or even impending transformations. This activity has the potential to open new revenue sources, encourage inclusivity and accessibility, and opportunities for discovery; but will, at the very least, align the mission of the Forest with the reality of the current Forest experience and the future of the land.

The CEF is a large area with many components that are interdependent. A decision that impacts one variable will have results, intended or unintended, on others. Thinking in systems will help address these concerns and providing meaningful data that is holistically relevant can help CU decision-makers decide the future of the Clemson Experimental Forest.

Literature Review

Transformation can be seen as a process with distinct phases that exhibits significant reordering challenging existing structures to produce something fundamentally novel that is independent of but could also include resilience, adaptation, recovery, or restoration. As a working definition, transformation could be a meaningful approach to systems-based sustainability, creating landscapes that are unprecedented, in a world that is increasingly unprecedented. Transformation is a teleologically based approach, focused on an end-result; the reasoning is in purpose of a goal. One of the lessons from large-landscape conservation is that locally planned conservation needs to take into account regional concerns. Transformation can build upon that. Moore et al.'s (2014) recommendations of natural capital and ecosystem services combined with both

Kardashev's scale (1964) and Grinspoon's (2016) intentional change can help work toward the product-oriented goal of transformation.

Due to novel and multifaceted systemic challenges, conservation denies an easy definition as well. "Conservation is both a scientific enterprise and a social movement that seeks to protect nature, including the Earth's animals, plants and ecosystems… Effective conservation requires a clear understanding of how people impact the planet and how they make decisions about their use of natural resources." (Kareiva & Marvier, 2003, p. 1). As a "scientific enterprise and a social movement" it is best not thought of as the act of conserving things but rather as conserving the abilities for trajectories to occur (see Eisenberg, 2010, for discussion). Due to stochastic conditions and multiple variables, it is ill-advised to try and conserve a habitat as it is or a species in a specific place. However, if a conservationist seeks to "conserve" the trajectory of an ecosystem they can find success in sustainable practices. Accordingly, conservation deals with the human species' relationship with the planet's resources, ecosystem services, and non-exploitable geophysical processes.

Conservation and land management always must contend with the question of what are we managing for. What is the proper relationship to understand the relationship that humans and the natural world should have within land management contexts? Aplet and Cole (2010) use the typology of "naturalness" to explore the level of ecological condition and "freedom from control" characteristic to categorize the spectrum of stewardship options (Figure 3). The terminology that they use helps to understand the distinctions implicit in the "how do we fix nature" question. Along their x-axis of

"ecological condition," they have novel-to-pristine and across their y-axis of "Freedom from control," controlled-to-self-willed. They create four inter-related yet distinct categories: recovery – high pristine and self-willed; restoration – high pristine and high control; drift – low control and low pristine; and transformation – high novelty and high control.

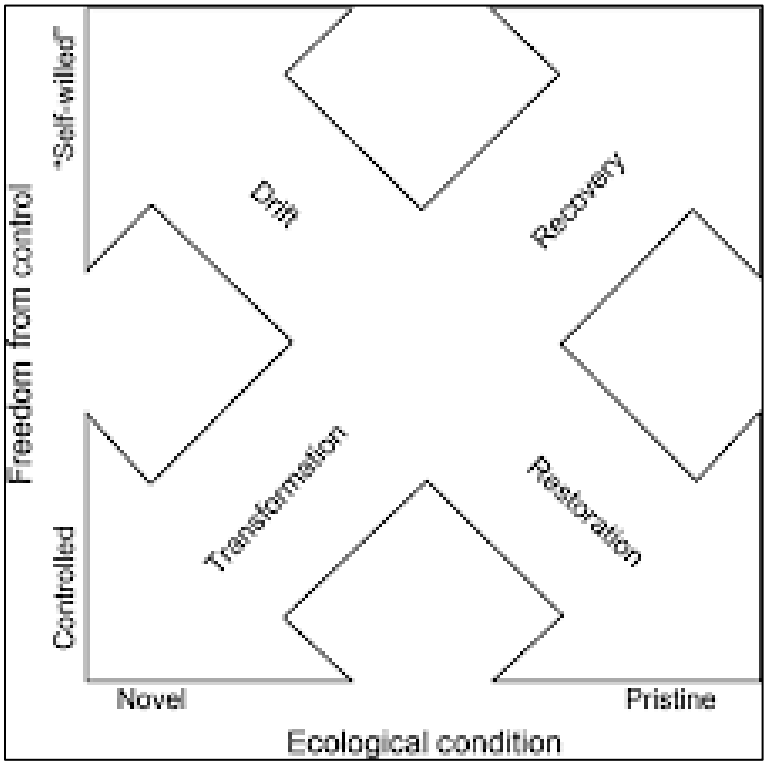


Figure 3. Stewardship options available along a spectrum of ecological condition and freedom from control, replicated from Aplet and Cole (2010)

This last concept, "transformation," is the point of interest for this exploration. Intuitively, it makes sense strictly from the concept of the word: the dictionary definition being "a thorough or dramatic change in form or appearance." Using Aplet and Cole's

(2010) definition, transformation is controlled from an external source (i.e. human) toward non-historical conditions (i.e. unprecedented, novel characteristics). Separate from “drift” though, transformation is teleological, result-oriented overlapping obliquely with more orthodox environmental management, such as adaptive management or resilience.

Transformation is relatively new terminology and is accordingly vague enough and ill-defined enough to point to anything that involves a conservation change. Like any popular fad, the term is being increasingly used to describe conservation efforts and even prescribe interventions. With the increasing use, it is helpful to understand the parameters of the term and idea, examples of what it is and what it isn’t, limitations and dangers of over-use, and an exploration of where transformation could go in scholarship and in practice. Below is an explication of the idea utilizing the best available scientific literature but also educated assumptions of transformation, considering that while the terminology may be new, the concept is not.

Definition of transformation

While Aplet and Cole (2010) use transformation in comparison to drift, recovery, and restoration, Blythe et al (p. 2, 2018) define Transformation in the following way: "In contrast to resilience (defined as persistence) or adaptation (defined as incremental change), transformation is often described as significant reordering, one that challenges existing structures to produce something fundamentally novel.” Using transformation as Aplet and Cole (2010) do, resilience and adaptation would probably be categorized as various degrees of recovery and restoration, as a best management practice to return land

back to pristine. However, the use of these ideas helps contextualize transformation with more orthodox environmental management strategies.

Moore et al. (p.1, 2014) references Olsson et al. (2004) in adding a temporal and praxis component to their transformation definition: "transformation [is] a process with distinct phases. The phases are identified as follows: (1) preparing for change, (2) navigating the transition, and (3) building resilience of the new trajectory of development." Moore et al (2014) recommends adding important components to this definition of transformation and these will be explored further in the discussion.

Blythe et al (2018) take it further than a definition and have categorized the "four general framings of transformations to sustainability." It is worth reproducing their four frames in full to understand the differences in transformation approaches (adapted from Blythe et al, p. 4, 2018):

> 1. ***"Transitions approaches****: with roots in social-technological studies, complex systems thinking, and institutional economics, transition approaches largely characterise transformation as multi-scalar, socio-technological transitions towards low-carbon futures (e.g. engineering innovations) (Geels and Schot 2007; Geels et al. 2017; Loorbach 2010).*
> 2. ***Social-ecological transformations****: scholars at the Stockholm Resilience Centre and their colleagues pioneered much of the early theoretical thinking on transformation within the field of resilience (Olsson et al. 2014; Westley et al. 2013). From a social-ecological perspective, social-ecological transformation results in novel, emergent system properties, changes in critical systems feedbacks (Chapin et al. 2009), and a re-ordering of social-ecological relationships (Olsson et al. 2017). It is recognised that any transformation will also involve unanticipated consequences that may make some conditions worse than before (Moore et al. 2014; Olsson et al. 2014).*
> 3. ***Sustainability pathways****: emerging from the intersection between critical development studies (Leach et al. 2012; Scoones et al. 2015) and resilience thinking on planetary boundaries (Rockstrom et al. 2009), the sustainable pathways approach emphasises the need for balance between human development objectives, justice, and ecological*

sustainability, with a particular focus on the power and politics of institutional change (Leach et al. 2012).

*4. **Transformative adaptation**: developing from human geography and political ecology perspectives on vulnerability to climate change (Ribot 2011), transformative adaptation approaches shift the analytical focus of transformation research from accommodating change (e.g. adaptation to climate change) to contesting the underlying social, political, and economic structures that produce marginalisation and inequality (Eriksen et al. 2015; O'Brien 2012; Pelling et al. 2015)."*

Similar Ideas

Transformation may be a new and increasingly popular terminology in conservation, but the concept is not. Transformation, as identified by the frameworks above, is similar to several concepts that have been utilized prior. On a smaller, local scale, the idea of "permaculture" is similar to both framework one (the Transitions Approach) and framework three (the Sustainability Pathways). Permaculture "is a creative design process based on whole-systems thinking informed by ethics and design principles" (Thinking tools for an era of change. (n.d.). Retrieved April 8, 2019). In a sense, transformation could be considered a large-scale permaculture, focusing on many of the same principles that permaculture on the small family farm scale is concerned with.

Reconciliation Ecology is another of these similar ideas. Developed by Rosenzweig (2003) in the early 2000s, Reconciliation Ecology is "the science of inventing, establishing, and maintaining new habitats to conserve species diversity in places where people live, work, or play…I am saying that people now use most of the world's land surface, and we can use it better. We can use it in a way that reconciles our needs with those of wild, native species" (Rosenzweig, 2003, p. 7). In Rosenzweig's

book, Win-win Ecology (2003), he shares idea after idea of marketable concepts that use – rather than exploit – nature. Ecosystem services are respected for their regenerative capacity, as opposed to their extractive components.

The transformation paradigm seems to be the frame that The Nature Conservancy has embraced, even if the term isn't always explicitly used. Specifically, within Blythe et al.'s (2010) third and fourth framework, as described above, The Nature Conservancy (TNC) has focused much of their work on Sustainability Pathways and Transformative Adaptation. In Nature's Fortune (2013), Mark Tercek, the current TNC CEO, discusses partnerships with companies to value ecosystem services better and they utilize what would be called Transformation Approaches to do so. Highlighting the efforts of New York City to transform their watershed and Dow Chemical in Texas developing tertiary treatment wetlands, Tercek focuses on a commitment to integrating human impact holistically within surrounding environments.

Similarly, The Nature Conservancy's (TNC) William Ginn's Investing in Nature (2013) contributes the concept of "additionality" to describe how efficient use of habitats through transformation of land for marketable yet sustainable pathways contributes to ecosystem services and non-anthropocentric conservation metrics. Using Timber Investment Management Organizations (TIMO) and Non-Timber Forest Products (NTFP), Ginn shares the TNC work within forests (many within the Southeast United States), to use a currency relevant to nature.

Lastly, Dr. M. Sanjayan, who worked with TNC and is now the Chief Scientist for Conservation International, developed a 5-episode documentary series called Earth: A

New Wild (2015) to show the many ways that humans are integrated into what is generally considered the "natural" or "wild" world. This series explores many things beyond transformation, such as species rehabilitation, Traditional Ecological Knowledge (Berkes, 2012), and technologically-heavy approaches to sustainability. However, within each episode - that also covers a broad survey of various ecosystems of our planet (e.g. plains, forests, oceans water) - Dr. Sanjayan does invest considerable time to focus on novel land management that we would understand as transformation.

Examples

To make transformation more tangible, easier to understand, it helps to look at examples. There are several examples of transformation in popular media and within the literature. One of the best is Veta la Palma (Barber, 2010) in the south of Spain. A river that was the source of effluent for years, then closed off as a salt pond, then left to “drift” was rebuilt into a wetland. But the purpose of the transformed wetland is aquaculture not an historic baseline. It worked and they transformed their land into a successful and productive estuary that has established both ecological structure and function, but also produces high quality fish for the market. The land managers use ecological signatures as their metric instead of the amount of fish they harvest – the fish’s predators, the level of species richness and biodiversity, etc. Accordingly, Veta la Palma has non-native flamingos fly in daily, the fish they are harvesting never existed regionally or in the artificially high numbers, and the locks and channels built to corral the fish are anything but a meandering tidal channel. The habitat was built to mimic components of “nature” and is ecologically effective while developing a novel ecosystem.

Hobbs et al (p.560, 2014) share several examples of how transformation often follows a "historical–hybrid–novel patch[work]" dependent on the disturbance that required the original intervention. They use examples in the Seychelles of *Cinnamomum verum* invasions interspersed among native habitats to contribute to the cinnamon market, "secondary salinization of wetlands in Australia … or the creation of new substrates such as shale-oil spoil heaps in Scotland" (p. 559).

Criticisms

There are several criticisms of the transformation paradigm. Peter Landres in Let It Be: A Hands-off Approach to Preserving Wildness in Protected Areas (2010), shares the reasons why and when it is good to avoid a transformation approach. Landres describes the benefits of preservation: deepening respect for nature's autonomy, fostering scientific humility, accepting evolutionary change, sustaining non-focal species, reducing unintended adverse consequences, providing unmanipulated benchmarks, and preserving options and hedging risk.

These are orthodox preservationist arguments, going back to Muir and others in various forms. Aside from the criticism from traditional conservation biology that looks to Historic Range of Variability (HRV) for a baseline from which to develop metrics of success (i.e. pre-European levels of species richness or habitat structure), Blythe et al (p. 6, 2018) identify latent risks with using a transformation paradigm:

"Risk 1: Transformation Discourse Risks Shifting the Burden of Response onto Vulnerable Parties

Risk 2: Transformation Discourse May Be Used to Justify Business-As-Usual

Risk 3: Transformation Discourse Pays Insufficient Attention to Social Differentiation

Risk 4: Transformation Discourse Can Exclude the Possibility of Non-Transformation or Resistance

Risk 5: Insufficient Treatment of Power and Politics Threatens the Legitimacy of Transformation Discourse"

Blythe et al (2018, p.10) use a poignant anecdote to encapsulate the dangers of these risks: "Following Hurricane Katrina, Tracie Washington, a human rights lawyer with the Louisiana Justice Institute, responded to policymakers who commended the resilience of the New Orleans community with posters that read: "stop calling me resilient: because every time you say 'oh they are resilient' that means you can do something else to me."

Moore et al. (2014) share another criticism, that transformation as currently used by the UN and Olsson et al. (2004) fails to adequately integrate natural capital and ecosystem services, thus disconnecting the important linkage between the socio-ecological system and the natural world. Additionally, systems-based theorists have shown us that tipping points, or the exceeding the "ball in the basin" threshold (Walker and Salt, 2012) have the tendency to irrevocably push a system from one state to another. Any decision carries that risk but the problem with transformation is that the condition sought is consciously novel, which intrinsically establishes unprecedented tipping point.

However, Hobbs et al (p. 559, 2014) point out: **“**If it can be determined that the ecosystem changes are irreversible (i.e., a threshold has been crossed), then options for management as a novel ecosystem can be considered. The question of irreversibility is not a simple one, since just about anything other than the stark abiotic changes described above may theoretically be reversible, given enough resources and effort.”

The risks shared above show this power dynamic and disequilibrium. Any transformation - any management decision for that matter - is a matter of value judgments existing within the real world constrained by resources. Highlighting these risks helps value the relevance of these issues and reminds a land manager of the scope of the system involved. Furthermore, what principles are guiding the changes and what are the changes attempting to achieve – in essence, are ad hoc, decentralized transformation approaches contributing to a better natural world?

Understanding transformations in systems

Grinspoon (2016) takes the dire warning of the Anthropocene and acknowledges the impacts of our change as unintentional, requisite of a planetary species growing into its own capacities. Recognizing the impact of our change is the first step and moving from making disorganized, inadvertent global change to Grinspoon’s fourth kind of change, intentional global change, is a paradigm shift in itself. This meshes well with Kardashev’s (1964) famous Types of Civilizations, with Type 1 being a planet that uses all of the energy that hits it from its nearest star. Some scholars have said that we are a Type .9 and Deutsch (2011) says that the transition to a Type 1 is the most challenging of all transitions as it requires a significant reordering of the social structures to move from

burning of biotic and fossil fuels to a world that harnesses the energy that travels from a star. Using these thinkers' recommendations, we can place transformation in large-landscape regional concerns but also in planetary concerns as well.

These philosophies can help the theoretical underpinning of transformations but to create a transformation, Olsson et al. (2004) recommend – 1) preparing the system for change, 2) using a window of opportunity, and 3) building resilience of the desired state. They use the Helgeå River wetlands in southern Sweden as their case study to understand transformation. Walker and Salt (2012) found this case study so instructive for transformation that they use it in their handbook for the Resilience Alliance. Further, McCool and Freimund (2015) highlight the importance of managing learning, demands, and relationships in establishing novel transformation landscapes. The recognition of feedback systems and the importance of learning specifically, creates a dynamic praxis for implementing transformation.

Building on this, Moore et al. (2014) recommend the following "Framework for analyzing the multiple subprocesses in each phase of a social-ecological transformation process" (adapted from Table 1, p.4):

1. *"Triggers or Pretransformation*
2. *Preparing for change*
3. *Navigating the transition*
4. *Institutionalizing the new trajectory"*

Transformation is a new term and new terms carry new thought processes. Conservation biology was described as a crisis discipline (Soule, 1985). Blythe et al (p. 3, 2018) importantly summarize the societal benefit of developing good language to speak

effectively to our problems: "We base this paper [on transformation] on the premise that the language used in internationally agreed goals and policies is significant—it sets the discursive context for international sustainable development agendas and it shapes sustainability research, policy, funding, and interventions."

Is it even possible to develop a non-novel landscape in a world that is dealing with challenges unprecedented within the Holocene (the epoch which our species has thrived within): climate change, plastic pollution, unhinged nitrogen and phosphorous feedback loops, and the odd paradoxes of biodiversity (extreme extinction rates in conjunction with expansive spread of invasive species and monocultures, more converted/developed land but also higher levels of protected land, etc.)? Working within a novel planetary context carries with it, by definition, unprecedented changes, Hobbs et al (p. 561, 2014) point out that "novelty itself demands broad public dialogue. Since restoration to a previous historical trajectory is not typically practical for a novel ecosystem, careful discussion is required on appropriate goals for such systems." The recommendations for proceeding with novelty, unprecedented changes, and the challenges of "bold action and humility" (Yung, Cole, and Hobbs, p. 258, 2010) through the use of Wild Design and Six Principles of Park and Wilderness Goals.

As both the scholarship and practice grow, the transformation idea will mature. Transformation as a paradigm can help establish contextual parameters in which to base the novel conservation problems of the future. One concept that shows promise, is a development of the ethic to guide actions. Wild Design as described by Higgs and Hobbs (p. 236, 2010) is a method to provide a framework for decision making: "Wild design is a

formulation of design principles and practices intended explicitly for managers who are compelled for various reasons (legal requirements, loss of critical ecosystem components) to intervene in ecological systems." They go on to explore the seven Wild Design Principles: clarity, fidelity, resilience, restraint, respect, responsibility, and engagement. These principles and the explication of each of these terms, helps understand proceeding with transformation.

In addition to Wild Design, Yung, Cole, and Hobbs recommend developing principles to guide goal development. Six Principles of Park and Wilderness Goals (adapted from p. 255, 2010):

1. *"Provide clarity in purpose, approach, and desired outcome*
2. *Promote diversity and redundancy*
3. *Plan at multiple scales*
4. *Encourage flexibility and adaptability*
5. *Consider when to look to the future instead of the past*
6. *Balance bold action with humility and restraint"*

In combination, the Wild Design principles and the six principles for park and wilderness goals help guide transformation grow in scholarship and practice while acknowledging the latent risks identified by Blythe et al (2018), Moore et al (2014), and Landres (2010). The amalgamation of these transformation definitions, paradigms, criticisms, and recommendations for proceeding can help to formulize and reconcile the problems with developing a sustainable and meaningful relationship with the socioecological system we lie within.

Methods

Approach to research

This research provides data for Moore et al.'s (2014) first two steps of transformation, pretransformation and preparing for change. Considering the novel environmental setting of an ecological wasteland restored through replanting and twenty years of restoration, the CEF would be categorized by Aplet and Cole (2010) as existing in a "transformation" management typology of a novel and controlled natural system. The CEF is a good place to study transformation because the forest is growing interdependently with the surrounding social system. In a systems-based transformation context, the social components, the ecological characteristics, the environmental history, and the implications of management decisions on future trajectories are considered. The research to answer these questions is an exploration of a case study of the Clemson Experimental Forest and the real and perceived views of this area. As embedded research within a bounded system, this case study seeks saturation of multiple sources of information through extensive holistic analysis.

The CEF research is a case study and as such has a bounded system in time and place. As a researcher who works regularly with the CEF management team, is active in local community events, and regularly accesses the study site, I am an embedded, "complete participant" (Creswell, p.166, 2013). To bound the system and best communicate the need for research through active participation, developing multiple sources of information to "provide depth to the case" (Creswell, 2013) is necessary. There are several sources of information that I have participated in since September 2018

and these include: attendance at monthly CU Land Asset Committee meetings, summer internship with the CU Land Asset Committee, assistance with monthly nature walks hosted by the South Carolina Botanical Garden, attendance at community group events (i.e. Green Crescent Trail meetings), assisting with Dr. Motallebi's Carbon Market workshop, discussions with local stakeholders and experts (i.e. Ben Sill, John Garton, and Carlton Owens), phone calls with local forest managers (i.e. North Carolina State and Sewanee), discussions with outside sources (i.e. National Association of University Forests), and weekly walks within the forest to take photos, talk to CEF users, and pick up trash.

Data collection

Following Creswell (2013), Maxwell (2013), and Seidman (2013), qualitative data collection methods were utilized. In addition to being an embedded researcher, the following data collection methods were utilized: establishing the need for research; artifact discovery and analysis; inventories of uses, natural capital, and ecosystem services; surveys of forest users, stakeholders, gatekeepers, and experts; interviews of forest users, gatekeepers, and expert (see Table 2).

Table 2. Data collection methods

Data collection methods	In Order To:
Primary Data	
Artifact discovery and analysis	Collect historical and documented perspectives of the Forest
Informal interviews of social actors	Establish the need for research and bound the system
Interviews of decision leaders	Collect current perceptions of the Forest
Supporting Data	
Inventories of uses, natural capital, and ecosystem services	Better understand the physical site to member check with the perspectives (Koelsch, 2013)
Surveys of forest users	Provide a wide range of perspectives and uses from the people while they were in the Forest
Surveys of CU Faculty	Collect voluntarily shared perspectives from a group of critical social actors that use the forest for teaching, research, and quality of life
Comparative forest analysis	Contextualize the Forest among other management systems under a variety of ownerships
Audit Trail	Ensure consistency and saturation, and allow for new data collection methods to emerge

These data collection methods occurred in an iterative feedback process, where examination of the study site occurred prior to interviews and other data collection but would then be verified or triangulated by further examination. This process is described further in Figure 4.

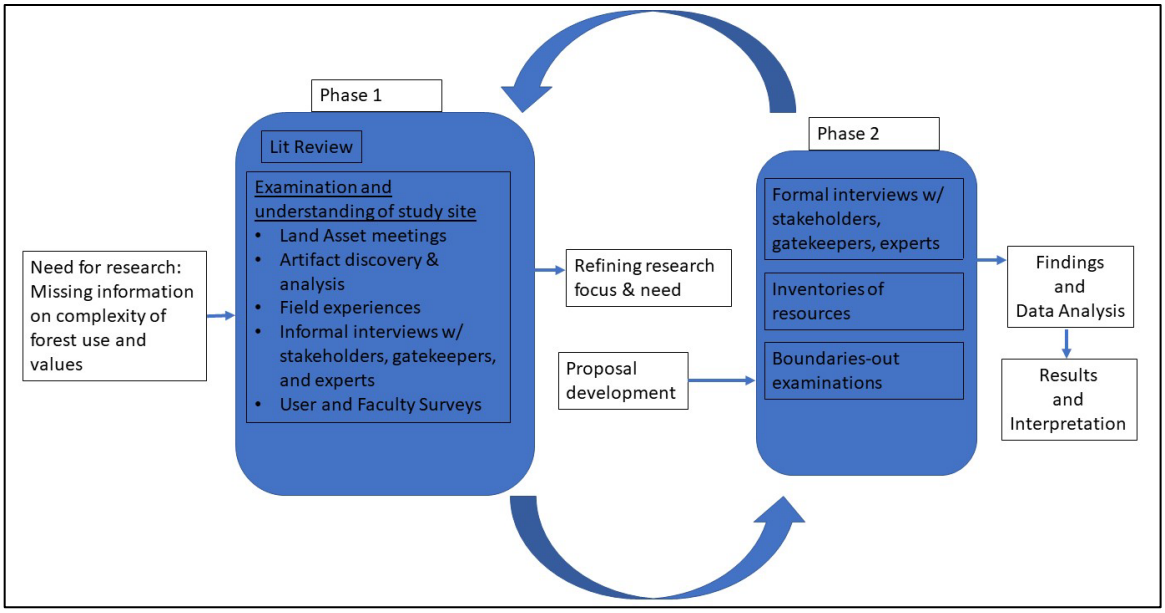


Figure 4. Flowchart of data collection

Artifact discovery and analysis

Artifact discovery and analysis began in September 2018 and carried through the writing of this manuscript. This process involved collecting the formal, informal, and published documents in possession by Clemson University, shared on the publicly accessible website, held by stakeholders, and environmental histories found elsewhere. The collection of this data did much to start the process of engaging with stakeholders involved in the project within Clemson University and outside of the school as well. In essence, it set the foundation of all other data collection methods. More importantly, it allowed for a more comprehensive narrative of the land as we began bounding the system. The analysis of the artifacts occurred concomitantly with further artifact collection and it also acted as a verification strategy as other data collection methods were implemented, such as surveys and interviews.

Artifact discovery and analysis consisted of six distinct categories: artifacts found in the CU library archives, previous research about the Forest, the various regulations pertaining to the land (see Appendix B), documents from the Land Asset committee, Clemson area history books, and assorted documents and project. Table 3 lists the various artifacts.

Table 3. List of artifacts

Artifact	Source
Red Hills and Cotton by Ben Robertson	Book
Quiet Reflections by John Garton	Book
Liberia, South Carolina by John Coggeshall	Book
Rural Life in the Piedmont of South Carolina by Dennis Taylor	Book
2004 Urban Land Institute plan	Clemson community member
Archived website saying that CU planned on using ULI plan	Clemson.edu
The Clemson Experimental Forest: The First 50 Years	Clemson.edu
Management Alternative Research Project (MARP)	Clemson.edu
CU Land Asset books	CU Land Asset Committee
Clemson University Experimental Forest: Project for Environmentally Sustainable Trail Management	CU Land Asset Committee
CEF Files	CU Library Archives
Marlin Bruner Files	CU Library Archives
George Aull Files	CU Library Archives
Stassen Thomas Files	CU Library Archives
Decolonize Clemson University	decolonizecu.org
Speak My Name Project	Facebook, and then Dr. Thomas's book
Aull's Grand Experiment	Master's Thesis
Expeditions with Dr. McMillan	PBS.org
Assorted CEF documents	Retired CU professor
Regulations	Various sources

Informal interviews

Similar to artifact analysis, we needed to understand what we needed to understand with this project. To do this, informal meetings were organized with a variety of social actors, some of which became individuals that we formally interviewed later. The distinction between formal and informal is that we only conducted formal interviews once we received ethics approval from Clemson's Institutional Review Board (IRB) and were recorded for data collection. Discussed below, formal interviews were all anonymous and confidential as well. However, for the sake of building trust with the social actors, we communicated that while the informal interviews were not recorded, we would still maintain confidentiality and anonymity. The whole point was to establish our bounded system and allow us to progress with formal research, knowing that we would be collecting the most robust data. Approximately twelve people were informally interviewed from September 2018 to November 2019. From these informal interviews a more robust understanding of the social actors involved in the CEF system was derived, as identified in Figure 5. With the artifacts and the informal interviews identifying information rich sources, we were able to determine where to collect primary data from formal IRB-approved interviews with decision leaders in the system and pertinent artifacts, as well as supporting data from surveys of Forest users and CU Faculty, inventories, and comparative forests.

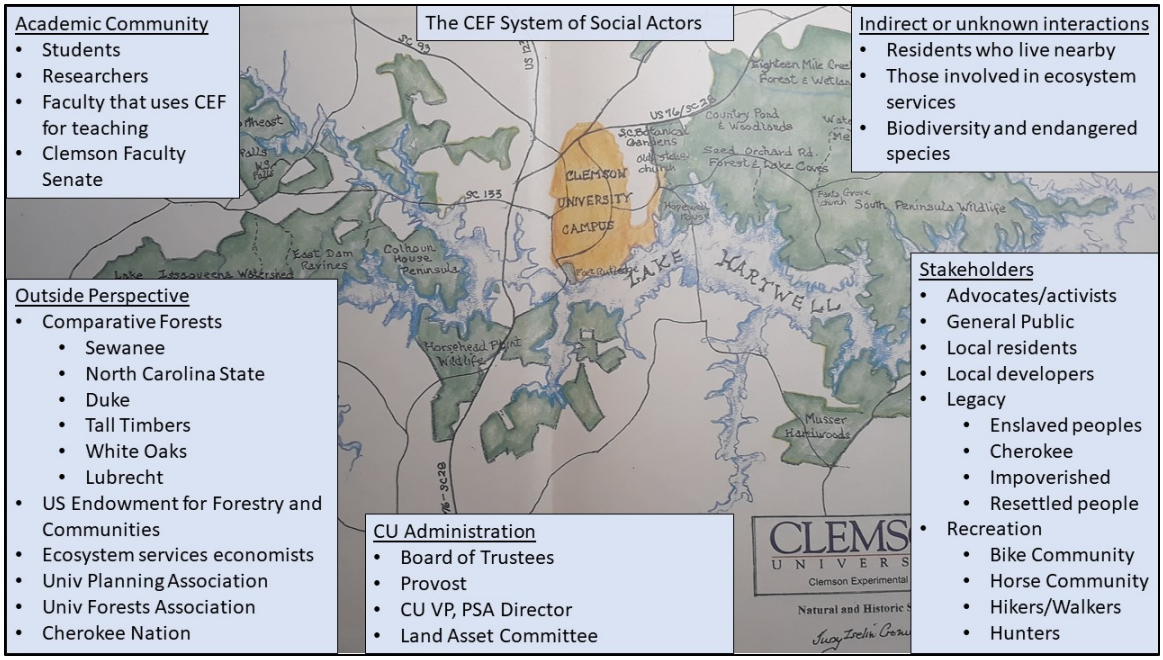


Figure 5. The CEF System of Social Actors

Interviews and coding

Once the informal interviews, majority of artifact collection, the user surveys, and most forest comparisons were completed, the formal IRB-approved interviews of decision leaders within the system occurred. The formal interviews initially involved two separate approaches: a group interview of the land managers and individual interviews with decision leaders identified through purposive methods from information rich sources and ultimately, data saturation. Separate IRBs were attained for both approaches in early 2020 and the land manager interviews occurred in late January 2020 while the individual interviews started in February 2020 and concluded in July 2020. However, as will be discussed further in chapter 4, a final interview requiring two months of discussions with the Cherokee Nation to allow us to apply for a new IRB with their Nation occurred in September 2020. Until mid-March 2020, the interviews were conducted in person and

then, because of the global interruption of the COVID-19 pandemic, interviews after this time were conducted over the phone or on Zoom software, "an online audio and web conferencing platform."

All individuals interviewed are considered social actors in the system but those that were chosen to be interviewed formally with IRB approval are also further categorized as decision leaders within their respective communities. The informal interviews, artifacts, and surveys allowed for a broad understanding of the social actors as well as attempted to collect a wide range of information for the sake of not missing anything. However, the identification of decision leaders to interview was meant to provide depth and breadth to the data collected. The extent of this information-rich data privileges perspectives that are more acquainted with the system, potentially offering higher quality ideas for future management. The wide-ranging collection of various information from surveys, inventories, and comparisons is meant to ensure no large outliers are ignored. It is this rationale that led to choosing a wide range of decision leaders to interview within the CU administration, faculty, and researchers, as well as decision leaders within the greater Clemson community and organizations, and relevant outside expertise.

To protect the decision leaders' roles in their respective communities, as well as to encourage honest participation and sharing of data without fear of reprisal, interviews were anonymous and confidential. Each participant was interviewed using a modified Seidman approach (Seidman, 2013). The Seidman approach includes three ninety-minute interviews for each participant in a place convenient and comfortable to the participant,

but this was modified to capture each of the three focused interviews as parts of one interview that ranged from 90-120 minutes. Each interview was designed for specific purposes of developing trustworthiness between interviewer and participant as well as reaching data saturation. Following Seidman, the first part of the interview is based on establishing a *focused life history*, the second focused on the *details of the experience*, and the third on *reflection on meaning*. Questions in the *focused life history* attempted to understand who the participant is, what their skills and profession are, and their relationship to the CEF. The *details of the experience* focused exclusively on their attitudes, values, beliefs, and knowledge of the CEF. The questions *for reflection on meaning* attempted to relate to the interviewee's interpretation of the holistic system and how they believe their perspective integrates into the comprehensive whole. Interviews were open-ended with an initial list of questions. Unless logistics precluded the opportunity to record them or if the interviewee specifically asked not to be recorded for the sake of confidentiality, all interviews were audio recorded and later transcribed.

Interviews were transcribed and analyzed through inductive coding, defined as beginning with close readings of text and consideration of the multiple meanings that are inherent in the text. The evaluator then identifies text segments that contain meaningful units and creates a label for a new category to which the text segment is assigned" (p. 241, Thomas, 2006). These in vivo codes were used to develop themes that shed light on the categories of thought that each participant was speaking to (Creswell, 2013). These data were used to develop a logical and comprehensive narrative of the co-constructed parameters of the environmental history, management, and future trajectories of the CEF.

For the purposes of verification, multiple researchers reviewed coded portions of the transcript.

Information from the land managers is comprised of anonymous and confidential interviews of the four living land managers. This group meeting occurred on 21 January 2020, however only three of the four could attend and a follow up meeting with the remaining land manager occurred two days later. The first interview of three managers was 3 hours long and the second with one land manager was 2 hours long.

The individual interviews with decision leaders were conducted with 30 people. These were identified through the prior work and through purposive methods, identifying important people as critical sources of rich information as the research progressed. These interviews were analyzed, and initially 1700 coded segments were produced under 10 themes. The second and third round of analysis distilled these and created 1700 codes under 5 separate themes, each containing several sub-themes that organized these coded segments. Thematic statements were developed for each of these five themes that included an understanding of the sub-themes. The five themes are Future/s of the Forest, Bureaucracy, What is the Forest – Lived Experience in the CU/CEF/Upstate System, History of the Forest, and What is the CEF for? While separate and distinct for their own explicatory purposes, these themes all intertwine and speak to one another to help produce a broader and richer understanding of each.

Surveys

To help provide supporting data to the artifacts and interviews, two surveys were conducted. Although they were not the direct focus of the study, they both serve as useful

methods to capture a wide range of data not otherwise identified. The two surveys are different in their intention. The first was built and distributed as part of work with three other researchers seeking information about recreation demographics in both the north and south Forest. This survey was approved by IRB and released in person at multiple trailheads within the Forest in Spring 2019, Summer 2019, and a little in Spring 2020 before the COVID-19 pandemic interrupted the work, and 70 distinct surveys were completed and analyzed. This was a distinct research project with its own separate IRB and the information relevant to this research was where recreation users lived, their affiliation to Clemson University, and any information they could provide in open-ended questions.

The second survey was directed solely at CU Faculty and was built and distributed through CU Faculty Senate. As an embedded researcher, it was part of my task as a student employee to help build the survey, share it with Faculty Senate sub-committees, and help the Faculty Senate president distribute it to all of the CU Faculty. This survey was built in the Autumn of 2019 and Winter of 2020, revised and approved in the Spring of 2020, and released digitally for the month of June 2020. Of the approximately 1500 CU faculty there were 389 responses, and a collaborative analysis with Dr. Baldwin's Conservation Social Science lab and former CU Faculty Senate President occurred in Autumn of 2020. Results were organized and a report was issued to CU Faculty Senate in Spring 2021.

Boundaries out

In order to better understand the bound system in context, an examination of information from other sources was necessary and a larger "boundaries out" data stream evolved. The "boundaries out" examination included researching comparative forests, external forest professionals, external professional organizations including the Society for College and University Planning (https://www.scup.org/) and the National Association of University Forest Resources Program (http://naufrp.org/), other lands regulated by the USDA through the Bankhead Jones Farm Tenant Act, representatives from the Cherokee Nation, and prize-winning novels about forestry published during my time in graduate school. I include this last one because I think it is an important component of how the larger societal dialogue about forestry is composed.

This process was also iterative, in dialogue with the other data collection methods. For instance, after an informal discussion with an outsider it was recommended that we seek out the non-profit National Association of University Forest Resources Program and the data derived from this interview contributed significantly to our understanding of the instrumental values of conducting this research. This contextual "boundaries out" process helped with an understanding of the importance of the CEF not just within the system but the role it has in the nested systems at larger scales.

Comparative forest analysis

The Clemson Forest exists as several other forests do: within layers of understanding and comparing like forests is a challenging task. In the beginning of the research, several people recommended we reach out to different schools to understand

their respective missions. As the research progressed, more people recommend even more forests. As we discussed the CEF with other forest managers, comparable and contrasting characteristics can help us better understand the constitution of the CEF. In searching out comparative forests, two criteria were used to identify outreach and inquiry needs: have they experienced the same problems of identifying values and assets, and if they have a simple, stated focus, how do conflicting values get addressed? Further, we had to address whether we compare similar size, proximity to a school, a research focus, within the same ecoregion, or is there some other metric? Table 4 identifies the list of comparative forests examined for this research.

Table 4. Comparative forests

Owner	Forest Name	Acreage	Year Established	Source
Duke University	Duke University Research Forest	7,000 acres	1931	https://dukeforest.duke.edu/
Harvard University	Harvard Forest	4,000 acres	1907	https://harvardforest.fas.harvard.edu/
North Carolina State University	Numerous Properties	94,000 acres	various dates	https://cnr.ncsu.edu/about/forests-facilities/
University of Montana	Lubrecht Forest	21,432 acre	1937	https://www.cfc.umt.edu/lubrecht/
Sewanee	The Domain	13,000 acres	1857	https://new.sewanee.edu/offices/university-offices/environmental-stewardship-sustainability/the-domain/
USDA	Calhoun Experimental Forest	2,078 acres	1947	https://www.srs.fs.usda.gov/compass/2016/03/30/the-calhoun/
Tall Timber Conservancy	Tall Timbers	9,125 acres	1958	https://talltimbers.org/
Walter Conservation	White Oaks	17,000 acres	1983	https://www.whiteoakwildlife.org/

Data Analysis

The data were originally analyzed through an iterative process throughout the project. Guided by the original question (What is the CEF for?) the data were collected inductively and assessed independently but also in concert with other data collected for veracity and relevance to the comprehensive understanding of the Forest. Not knowing the eventual form of the results, the data was regularly assessed to see if patterns occurred or if a solidifying narrative was emerging. There is a component of subjective

discernment by the researcher in this process and it becomes challenging to identify which data will be relevant further down the line, which data are anomalous, and which are organizing patterns. To inform this discernment, regular consulting of the audit trail and reflexivity exercises are two methods that evolved into an abductive discovery process whereby organizing ideas were pursued, refined, or abandoned. It was through this abductive analysis that many attempts to make sense of the data occurred with many dead ends. However, these dead ends are important to the eventual result as they guided the research for a time, contributing important factors while at the same time refining the results. For the sake of understanding the analysis process, these dead ends are described in Appendix C.

The analysis resulted in the development of thematic categories. These thematic categories are the lumping together of unignorable data that kept resurfacing throughout the project. In trying to understand these thematic categories, I developed a heuristic to ask myself when encountering a potential category: based on all of the combined data, could the purpose of the Forest be understood without addressing the following category? While there are better explanations and even subtle nuances within each category, this question has guided the development. Similarly, I analyzed the data to ask what was missing for a comprehensive understanding of the Forest and this exercise resulted in the analysis that is explored in chapter 3 for a contextual positioning, and in chapter 4 with an inquiry into the norms of values. However, the thematic categories are robust and translate as socially co-constructed perceptions of the Forest's worth. They become the purpose of the Forest as seen by the various sources examined. It is important to note that

I do not use the term “socially co-constructed” as a relativistic term here. It is not meant as a “popular perspective” of what the Forest is or an attempt to satisfy all demands or arbitrary user opinions. Instead, “socially co-constructed” here is meant to identify the constructed meaning and purpose that results from years of focused interaction and engagement with important aspects of the Forest from the various historic and current respective communities.

Data Management

With these multiple data collection methods, managing data required further methods of organization. Each data collection method had its own filing and organization system specific to its needs. For example, the surveys had an online database of survey answers, the interviews and some of the digital artifacts were collected and analyzed through MaxQDA software, an online dataset of 1,796 photos captured from the Forest and associated projects was maintained, labelled, and shared with social actors, and an audit trail with regular reflexivity exercises was also maintained.

The primary data management technique that was utilized was an extensive audit trail that was maintained throughout the project. From the outset, a practice of identifying significant events in the research was conducted. This occurred in a digital spreadsheet as well as on a large display on my office wall. Recording the significant events, their date, and what was learned helped an understanding of the path the research was taking. Further, I was able to question and verify data collected and to assess new information. With the researcher being the instrument in qualitative research, this maintenance of data

and self-reflexivity is necessary for quality results (Pezalla, Pettigrew, and Miller-Day, 2012).

Results

The analysis of these data streams resulted in the development of nine thematic categories to better understand the values of the CEF. These thematic categories are co-created from discussions with people currently living within and outside the system as well as analysis of the artifacts from the history of the CEF lifespan. The nine thematic categories are: Economics with a focus on timber forestry, Academics, Quality of Life, Recreation, Communications, A "20,000-Acre Campus", Spirituality, Existence Value, and Boundaries Out.

This combination of data from the present with the past, from within and outside the system, written and spoken, from varying levels of expertise of different subjects, from varying levels of access to decision-making, and my own personal experience and discernment integrate into a more comprehensive understanding of the important components of this CEF system. Therefore, the thematic categories from the data analysis results in the development of the socially co-constructed purposes of the CEF. These categories can then be seen as the nine purposes of the CEF as valued by the community holistically. Each purpose is listed with a brief description with pertinent data related to each.

1. Economics with a focus on timber forestry

The data show that economics is the most prominent characteristic identified with the CEF. From the very beginning of the Forest, the economics has been coupled with the

Forest's potential as an asset but also in the threats to its existence. However, the historic artifacts from Dr. Aull's original writings, economics was never the sole purpose of the Forest. Like economics in general, the financial asset should be treated as a means to an end of human betterment rather than an end in itself that should be achieved at the expense of the other purposes of the Forest. This is a nuance that is sometimes difficult to appreciate or recognize when analyzing the interviewee's perspectives or the historical data, but this is one of the main differences between an ordinary privately-owned forest and the CEF that was put in the stewardship of a public trust university. This intention is recognized in Aull's thoughts from a reflection with Marlin Bruner when he stated "Regardless of use we changed the picture – however, high level cultivation was not in the picture at the time, though we might want to do that now. Another thing is agricultural and industrial relationships. Had ideas of using produce of this area for industrial purposes." See Appendix B for examples of artifacts from the archives and the regulations.

Economics is still one of the main values or items discussed throughout all data. The regulations and artifacts all point to the importance of economics. The surveys occasionally recognize that the Forest is a "working forest." The entire existential question of the Forest is an attempt to pay for it against the threat of other tempting and lucrative options. The most numerous coded statements from the interviewees reference economics in some way. Equally important, the statements are qualitatively valuable for their richness. Examples of some of these quotes are shared below:

"...you can use the term forest management to mean two different things: cutting trees or selling contracts for cutting trees, and from every other perspective, management is everything else: keeping trails clear, education, etc..."

"Therein lies one of the big issues: How do you value a park or recreation area and how do you get funding from the public, which is getting, which is reaping all of the good? There is no, no line between their funds, their private wealth, and the town's meager tax stream and paying for those recreational opportunities. And everything is always on the cheap and bare minimum and low budget. And that's just the nature of recreational activities. And I don't really see a way out of that unless the micropolitan area comes together and realizes how important this resource is to their quality of life."

"The Forest is just not that core to [Clemson University's] mission to most of the people here and doesn't have much of the, it's not tied to the income streams, it's just seen as a nice add-on.....and I hate to say that, but I believe that's really the way it is."

"[Interviewer question:] What's that relationship with the cultural and historic experience - the history of this land, the history of this culture? What is that going forward? Is there an acknowledgement and appreciation and engagement with the history?

[Interviewee:] I think for me, my example in the past, up to within the last two years, our history of the land has been like a dusty book on a shelf somewhere. It wasn't unknown. It's just that nobody paid much attention to it and I think the last couple years with the history taskforce [redacted] [that is trying] to recognize everything that happened on every piece of land that Clemson has now or has had is actually very healthy thing to do, to recognize it. It goes all the way back to

Native Americans it goes through enslaved people. It goes through Reconstruction. It goes, goes through the Depression and you know, all these things that have happened in the world, prior to the US being here and up to present all impact the way the land looks by choice or by disaster and incorporate that into how we go in the future is what is the key thing to do. So, the culture, in a way, is important to understand. We also have to recognize that there are forces that take place in nature that we have no control over, whether we like it or don't like it, species come and go because of climate. Whether it's man-made climate or natural climate change is beside the point - they're still coming and going. So how do you accommodate that, recognize that? And then the culture of the world has changed – the Southeast has changed, it was extremely agrarian where that's all anybody did, with just a few storefronts in individual towns. I mean, it's still the number one industry in the state as far as trees and agriculture, but there's many other things that go on. So people have a lot more needs, that we talked about earlier, on the land that is not in urbanization. Whether it is hunting or ag, or tourism, or forest management, or bird-watching, or whatever - these are all key elements to our society, that weren't necessarily there 50 years ago, a hundred years ago. I think that will increase in time. So once again we come to this Little Green Island in Oconee, Pickens, Anderson County that is the Clemson University Forest. So, the value I think to the public goes up in time. So, we got to go back to: how do you monetize that?

[Interviewer:] Yeah, to protect it, to be that driver, to continue to be that driver. The little green Island. I love that.

[Interviewee:] That's what it is. It doesn't look like that because there's a lot around it. But you know, once again, your question about private forest land in private ownership- those folks can do as they care to do, to keep it in forest land. We're not that."

Through these quotes and the artifacts examined, it is clear that economics with a focus on timber forestry is a critical component of the purpose of the land. It captures

much the relationship to the land of the past eighty years and is the main filter in which all other decisions are interpreted. While other values and uses, like academics, recreation, and the rest of the perspectives, have been allowed and even encouraged on the Forest property, the timber asset is the driver of management.

2. Academics

Similar to economics, teaching and research has been of primary concern for the existence management of the Forest. I've identified the teaching and research simply as "academics." From the PSA perspective, the Forest has been for research, teaching, and demonstration. Likewise, several interviewees mentioned that, ontologically, this land is land grant land, meant to benefit the people of South Carolina and the United States through discoveries from research and opportunities of teaching.

The Forest is open, receptive, and accommodating to the CU academic community for teaching and research, especially if the interested CU faculty knows who to reach out to and what they want to do. Part of the land manager's job title is to collaborate with interested faculty to coordinate the logistics of their teaching or research in the Forest. The CEF website has all of the information clearly stated for interested CU faculty and academics are recognized in the CEF mission statement as well.

Several issues have been identified with academics and the Forest in the data. Most prominent is that, while the Forest manager and the mission accommodate academic requests and activities as best they can opportunistically while reacting to the random request, teaching and research do not contribute to the Forest's budget, nor is there an assigned staff directed to overseeing or integrating academics. Second, the Forest

it is “not seen as part of campus, as an extension of the core campus or mission.” The Clemson campus has been identified in several artifacts as a twenty-thousand-acre campus but there is a disconnect with the lived experience. Third, and similarly, there is a sense that “you have to know, to know” how to utilize the Forest.

The first constraint to academics being fully realized in the Forest is that there is little budgetary commitment to academics in the Forest. From several sources throughout the project, we’ve heard variations of “anything that is not timber harvest is seen as a cost to Forest management.” According to a review of the budgets, it is a valid statement. As we learned from our interviews with the Land Managers, for the most part, “nothing like grant dollars or lab fees are directed toward management,” even when management is directly involved in the logistics of establishing teaching or research activities within the Forest. Statements such as the following attest to this:

> *Interviewee #3: We do provide a lot of match formal matching in the terms of a match letter that they could provide for their funding.*
>
> *Interviewer #1: Matching in-kind services, but you, but the money never comes back to the Forest itself and may go to the larger Department through overhead or whatever.*
>
> *Interviewee #2: Yeah, that's something we have had to try and address sometimes - that return.*
> *Interviewer #2: Well yea, because if the university gets a return, if I turn in a grant, if I do something with the Forest Service, I’ll get 17.5%, but the university gets overhead, my department gets overhead, but if there's an NSF grant that comes in… They're going to pay 42% and somebody's getting that….*

Interviewer #2: The forest isn't getting that. And they should. Or, some of it should, some component of it. Same with teaching - a lab fee. We've had a few faculty members that would contribute some of these back to the forest. But that's, well, we had one that did.
Interviewer #2: Any class that includes the forest, I mean, this is part of it….if we could document it. Well, the university is making $1,500 per credit hour per student? Why isn't it like 20 bucks per credit hour coming to the forest? Something where it would add up.

Interviewee #3: We could make the case that, you know, full-time and part-time staff are working on managing the forest exclusively for the research and if we take our time that we're, you know, putting in a letter pledging as a match and devoted towards that research, that is time and resources that were not putting towards our normal everyday management. So, it comes, it does come as a cost to us and, you know, we've gone through, we put all of our labor rates our salary and fringe in there. Calculated the machine rates for all of our, well, the equipment that we typically use and that's how if we're ever questioned on our matching letter, you know, that's what we use to I guess to show for that. But yeah, it does come at a cost and it takes us away from other things that work.

The second constraint to academics is that the Forest is not seen as part of campus. This will be further explored in the "connections" thematic category but there is something about the Forest that is disconnected from the academics of campus. It has been described as a "spaceship… away from the mothership" and "not core to the CU mission." This hasn't always been the case however and artifacts from 1950s have identified Clemson as the 20,000-acre campus.

Related to this disconnect is that several interviewees within CU faculty, the Clemson community, and recreationists don't know what the Forest is or where to get accurate or official information. This is explored more in the "communications" thematic category but for the purposes here, CU faculty have expressed their lack of knowledge about the Forest. The CU Faculty Survey demonstrate some of these results:

Teaching

- 17.4% of faculty respondents said they have used the Forest for teaching
- 82.6% of faculty respondents said they have not used the Forest for teaching
- 21.8% of faculty respondents said they anticipate using the Forest for teaching within the next 5 years
- 78.2% of faculty respondents said they anticipate using the Forest for teaching within the next 5 years
- 69.3% of faculty respondents said they would be willing to use the Forest for teaching
- 30.7% of faculty respondents said they would not be willing to use the Forest for teaching

Research

- 69.1% of faculty respondents said they have or have had a research project in the Forest in the last 5 years (35.3% have a current project there, 33.8% don't have a current project but have used it within the past 5 years, and 30.9% had a project more than 5 years ago)
- 20.3% of faculty respondents said they anticipate using the Forest for research in the next 5 years
- 79.7% said they do not anticipate using it
- 69.7% of faculty respondents said they would be willing to use the Forest for research

Some of the interviewee's statements speak to the relationship of the Forest and academics:

> *[When asked how an "asset" is defined as for the University]: "That's kind of how I would define the asset: it's something that's… mission critical to the research and education of the university and what it actually means…"*

"[The Forest] is still our biggest classroom… [crying] It is still our best classroom."

[In regards to the academic potential of the Forest] "…one of my favorites [quotes] and it's I think applicable ... John Ruskin was a writer… : "you know the highest reward for a person's toil is not what they get for it but what they become from it." ... Yeah, that sense that ... if our communities think that way, like if someone else comes into our community, are we prepared to be changed by them or is it only a thought that we're going to change them? So, what do we become…"

"I would say that's the actual organic compost of intellectual growth that comes from having a place like that, a natural area with so much diversity. So close to so many creative people."

"I think the special thing about the Clemson Forest you alluded to, which is the intimate relationship that faculty and staff have and students have with the forest because of its proximity to campus, because it sort of encircles campus and embraces campus, everybody has some kind of experience with the Forest. It doesn't matter what field you're in, you know: poetry, arts, you're out there and it's inspiring to people."

"I think often the Clemson Forest gets a bad rap for not having enough scholarship associated with it, but that could be what we call in ecology a lack of detection, where we don't actually know what's inspired by the forest."
"What happens in their minds that later turns into some kind of project? I mean, it would be a good question for people like that, where forestry or wildlife is not their field, but they're inspired by it. I think that intimate geography, the intimate geography of the Clemson Forest is one of its, one of its strengths."

[Regarding ecological research:] "Ecologically speaking, Taylor, another thing that's lacking is a good understanding of what this Forest is. So few people I have talked to since I've been here have clearly understood that the forest is as an ecological remnant of other times and how it really is a mosaic of ecosystems that are a mishmash of healing, healing ecosystems. It's one big ecological scar tissue. It really is a place of resilience and recovery."

3. Quality of Life

Quality of life is an important characteristic referenced by much of the data, through the surveys, the interviews, and in the historical artifacts as well. Quality of life as a value consists of how the Forest contributes to health and wellness and the aesthetic or amenity value also. This includes recreation, spirituality, and the existence value of the Forest but because each of these components plays an important role interdependently and have been recognized separately, I have distinguished these three as their own thematic category.

In a way, the entire reforestation project in the 1930s was a project to directly improve the quality of life for the Upstate inhabitants and pull them out of poverty and poor land use. Many of the artifacts show that the intention of the creation of the Forest was to directly improve quality of life and that forestry as timber was a side effect of that original intention.

Though our interviews, we found that quality of life for students, faculty, administration, and non-CU affiliated people are all different experiences. This includes the opportunities for recreation, the role the Forest plays in the person's family, the comfort of the existence value of the Forest, the importance of the Forest to research and

professional efforts, and, very simply, that some of those interviewed wouldn't live here if the Forest didn't exist. Several interviewees mentioned that they use the Forest as recovery and rehabilitation for different illnesses and ailments. One anecdote shared by an informal discussion within the Forest, shared that a doctor prescribed walking to waterfalls as a blood pressure reduction.

Through the User group surveys, the respondents mostly spoke to the importance of recreation to the quality of life. Some of the user group survey statements point to this importance:

> *"It allows me to get out in nature and enjoy the outdoors"*
> *"Provides recreational horseback riding, provides a quiet spiritual environment to relax, provides a place for groups to get together with great safe parking for people and vehicles"*
> *"helps me get through grad school"*
> *"time away from the crazy people of Clemson"*
> *"It's a great place to enjoy the outdoors. Sometimes I ride after work. It's the stress release I need"*

In the faculty survey, the following data was shared:

- 97.2% of faculty respondents said that they are aware that CU has a forest
- 83.2% of faculty respondents have visited the CEF
- 90.2% of faculty respondents said that they see the CEF as part of the identity of CU at least a little bit (25.6%=a great deal, 22.5%=a lot, 25.1%= a moderate amount, 17.1% a little, and 9.8%=none at all)
- 78.6% of faculty respondents stated that they used the CEF for personal reasons (such as hiking, biking, horseback riding, or other outdoor activities)
- 97.4% of faculty respondents reported having used the Forest within the last 5 years (86.1%=within the last year, 11.2% between 1 and 5 years ago)
- 70% of those who have used it within the last year have used the Forest more than 5 times

- 76-92% say that it contributes to their quality of life (37.3% a great deal, 18.5% a lot, 20.6% a moderate amount, 16.1% a little, 7.4% none at all)

Interviewees directly referenced the importance of the quality of life in the following quotes that exemplify this sentiment:

"It is my medicine…"

"And the Clemson forest will just increasingly become that super critical piece of recreation and quality of life. And that's just the best use. If you want real significant natural areas, there are more of them up in the mountains and on the river and other places like that. If you want great timber, you kind of have to go to land that isn't quite so worn out from cotton, or hilly. Then, I'd say, if you have a community asset for recreation and community support, a natural area, I would say that maybe even more important than the natural area, or equal to the natural area, would be education and research tied for that, sort of tied for second. We certainly use it heavily."

[When asked how conflicts and recreation contribute to community and quality of life:] "So a horse doesn't know what a bike is. They don't have any way to understand what a bike is. So what we teach kids, you get off your bike, and stand in front of it, so the horse sees you. You ask the rider, "Is this ok? How's your horse? What would you like for me to do?" I guarantee you nine out of ten times, people are not expecting that response. And they are seeing a cultural shift of us training more users to do that. But, when you do that, it becomes a "Oh, wow, they look out for me.""

4. Recreation

Recreation is the most easily accessible use of the Forest and how many users of the Forest frame their connection to the Forest. Short of clear-cut after timber harvest, recreation in the Forest is the most visibly apparent purpose as people can see it happening when they visit the trailheads. Much of the online presence on social media regarding the Forest involves recreational concerns as well. Because of this, much of the conversation about the Forest involves recreation. The artifacts how recreation being valued from the initial stages, both the faculty and user surveys address it, the interviewees mention it, and my own field experiences documented various recreational uses.

The following data was gathered from the Faculty surveys:

- 78.6% of faculty respondents stated that they used the CEF for personal reasons (such as hiking, biking, horseback riding, or other outdoor activities)
- 97.4% of faculty respondents reported having used the Forest within the last 5 years (86.1%=within the last year, 11.2% between 1 and 5 years ago)
- 70% of those who have used it within the last year have used the Forest more than 5 times

As an embedded researcher, I have recognized several anecdotal recreation issues that have occurred during this research. There is a 'belief' of recreation conflicts that have been shared in both formal interviews and in informal discussions.

Recreation use and the subsequent management concerns have increased dramatically, especially since the late 1990s. Land managers have shared that recreation has increasingly absorbed much of their time and resources. This issue – recreation increasingly absorbing land manager's time and resources – has several important points.

As discussed above, anything that isn't timber harvest is a cost to the Forest's budget. There is no contribution from recreation to the Forest budget directly, other than nominal Wildlife Management Areas fees. As recreation grows, the impact upon the Forest increases with no direct contribution to the management budget.

Several interviewees mentioned variations of: "And you got all this potential Recreation that is basically untapped. I mean, it's the Wild Wild West when it comes to Recreation. You can do what you want, basically." As the "wild west" of recreation grows, organization of recreationists grows and this increases their voice and feeling of ownership within the Forest which has resulted in unofficial land management actions not by CEF managers (e.g. independent creation of trails, naming and renaming of trails, use of chainsaws to clear trails of fallen trees, etc.), and parking and access at designated and informal trailheads creates spillover impacts in the surrounding community and has effected traffic.

Interviewees have mentioned that these issues not only are a cost to the Forest budget but are also a liability to the CU, challenge the town and gown relationship, and have ecological impacts as well. What this amount to is a perception of visitor satisfaction concerns versus harvest of timber. The reactionary approach is to satisfy the visitor while maintaining timber harvest but framing this as a visitor satisfaction issue has two main problems: first, while providing recreation opportunities have always been a primary purpose, satisfaction of the visitor has never been a stated goal of the Forest, and, second, appealing to satisfaction has been an exercise to make the "squeaky wheel" go away, thus perpetuating the cycle that encourages different users to advocate for their

purposes more loudly than before and more loudly than the other users. Indeed, the solution to these concerns is to add a recreation manager position to the Forest management team. There is a belief among users and some decision makers interviewed that if the recreation concerns are focused upon, then the main Forest management concerns are figured out. While addressing recreation is necessary, the data show that recreation is only the most easily accessible and apparent of the management concerns, thus drawing everyone's attention. My interpretation of the data is that managing for recreation alone (or, more accurately, timber with an associated recreation plan) will continue to exacerbate and even intensify the confusion of the Forest's purpose, dividing resources and management focus further and ossifying the capacities and potential to integrate a larger understanding of the land.

Data from the interviews, surveys, and boundaries out assessments show the perspective that recreation is a tremendous growth opportunity for the Forest. All of the data points to recreation being a high value of the Forest. As shared by several interviewees, there has been a growth of recreation use since the mid-1990s and increasingly so since approximately 2010. Just within the timeline of this research (2018-2021) many of the documented trail heads (especially in the North Forest but also in the South Forest, albeit in to a lesser degree) regularly experience traffic concerns, minor conflicts, and the occasional safety issues of blocking roads and pedestrians walking in the road. The increase in popularity of the Forest as a destination from the nearby urban areas of Greenville-Spartanburg, Colombia, and even Atlanta. This last point is interesting to the idea of sprawl within the Charlanta Corridor: in interactions within the

Forest, our research team has come across several people travelling from all over the South for the purpose of visiting the Forest because it is a valuable mountain biking destination, the ease of horseback riding opportunities, or simply because of the aesthetic or free access to hilly (but not mountainous) terrain that has views of the lakes and waterfalls. The amenity value of access to the outdoors to businesses and their employees in these more urban areas has also been shared by interviewees outside the CU system.

4. Communications

While this perspective of the Forest seems more one of action, the communications surrounding the Forest has been important enough to people to point out explicitly in the surveys, the interviews, and through the informal interactions as an embedded researcher. In fact, this appears in both direct and indirect ways. Direct ways include messages such as "they need to have better trail signs" or "the interpretive signs don't tell me much about what activities are permissible." Indirect references to communications occur when people have told us that they "didn't even know CU owns the Forest," that "it is called the Issaqueena Forest when you do a Google search," or when people didn't know that 90 years ago the Forest was cotton fields, let alone slavery agriculture 170 years ago.

Many interviewees spoke about the confusion of trails, who owns what, where to go, or when hunting season is. More importantly though, part of the communication issues discussed involved a belief from individuals within CU Forestry department that non-forestry people "don't really know what the Forest is about" or its origins and there is a sense of ownership that was both directly and indirectly spoken to. To make matters

more complicated, there is a belief that was expressed by some members of the user groups that decision-makers of the Forest see this land as dispensable, open to sale if the right opportunity appears. Members of the community point to recent examples as “death by a thousand cuts” with the 2005 ULI development proposal, the Daniel High School sale around 2009, and the recent development of the recycling center.

Further, some members of the administration shared with us that the “Board of Trustees see this land as sacred,” that “they just don’t want to have their hands tied in decision making,” and that “Clemson is in the forever business.” This seems to be in contrast to development examples mentioned above and also the fears of the community. But when this was mentioned to one decision maker, they pointed to the commitment to maintaining the integrity of the whole Forest during the very real economic threats of the recession of 2009, and that that was a direct representation of CU’s commitment to the Forest. Other perspectives from people involved in the management have stated that “It's almost, it's almost as if we're not living up to the, um, to our responsibility” and “if you have something that's sacred, do you put it away inside a vault or do you take it out and look at it, appreciate it, shine it up and have more people know that it's there and take advantage of it?”

There have been great strides toward better communication in just the past ten years with the creation of maps, a robust and informative website, social media presence, kiosks, an annual Forest Fest event, and interaction with various user groups. The history of communication also includes brochures, trail development, a variety of maps, presentations to groups, and signage.

Several members of the community mentioned variations of communications to and from CU. I have tried to identify these as: communications from forest to users, communications from users to forest, official versus unofficial, formal vs informal, communication to partners, and communication to adjacent landowners. Several members within the land management and forestry department have said that while these communications mostly occur informally now there was an occurrence where a formal community outreach program involved members of the community in the late 1990s but was abandoned after a handful of meetings.

Based on the work out of Colombia in studying the best ways to boost social engagement in environmental projects (Burgos-Ayala, Jiménez-Aceituno, and Rozas-Vásquez, 2020) five recommendations are made:

> *"1. Promote more clearly the benefits humans get from nature in policies, plans and programmes, 2.Ramp up education and training programmes, 3. Make communication, education and participation actions the core of all projects, from design to implementation, 4. Consider and engage with a more diverse set of stakeholders, above all indigenous communities and women, 5.Develop and implement social indicators to evaluate environmental management practices (e.g., quality of participation of stakeholders involved) to complement the more commonly used environmental measures of success"*

6. A "20,000-Acre Campus"

Similar to communications, connections seems to be a process rather than a characteristic. But seen in the sense that one interviewee described it as "Clemson is a

20,000-acre campus," it starts to make more sense. Within that framework as one holistic chunk of land, the connections from the Forest to campus carry both a physical reality but also a perceived reality. Connections here is seen as the conceptual connection of CU to the Forest ("Clemson is a 20,000-acre campus"), the historical connection, and also the physical connection through trails and access, the role of the lakes, or even maintaining the Forest as an ecological or wildlife corridor.

Within the community there is a non-profit organization that was created to address the lack of connections within the system, called the Green Crescent Trail. Their focus has been community development through connections such as trails.

The idea of a "20,000-acre campus" regularly appeared in the artifacts and among interviewees. Some of the major issues related to connections were discussed by interviewees as the "low hanging fruits" of bus and bike connections to campus, and vistas and walkways along the lake. This overlaps with recreation as well as understanding the role of biking within and to the Forest and general trail improvement and signage was mentioned as an important factor. When I mentioned that I recreated the William Bartam to some members of the community, they recommended commemorating the trail as an opportunity to connect to history and land outside of the system as well.

Within the artifacts, the Forest has been described as "the Forest that saved the Upstate" and also through "Clemson is a 20,000-acre campus." When Clemson College was first established, there was no substantive forest, no lake, and no buildings. These major amenities have developed independently of one another and while no artifacts

found speak to connecting all three as a comprehensive holistic whole, several artifacts mention the Forest as an important asset to CU students, or as the lake providing important recreational opportunities to residents of the area. However, because they developed independently, there was no master plan for seeing the system as a community but a designed physical connection between the three has been addressed through the interviews and surveys, as addressed below.

There is a very important temporal connection identified by the artifacts and some of the interviewees, and there are various histories that have connections to present-day Clemson that are underexplored. Dr. Rhondda Thomas's work in the Call My Name Project (2020) shows that the CU buildings were built with the help of convict labor involving African American children (Thomas, 2020). The lake was created in 1955 after the US Army Corps dammed the Savannah River for the nuclear power plant, and the Forest was originally reforested in the 1930s for the US Department of Agriculture to restore the submarginal agricultural land and alleviate poverty but then given to CU for stewardship. As a result, the Forest now exists on top of several plantations that utilized slavery agriculture, the resettlement of impoverished families occurred on this land, Lake Hartwell exists above the site of the Cherokee village of E'Seneca, and CU has recently discovered mass graves of captured Africans on campus.

Of those interviewed, some clearly saw the Forest as an extension of the campus, others see the campus as existing within a restored landscape partially created by the reforestation 80 years ago, and others simply see the Forest as a timber forest that CU makes money from, has stewardship over, and is a benefit to the environmental services

of the Upstate. This is a challenge to connections within and about the Forest. Clearly, people interviewed exhibit their own connections, a desire for variety of connections, and some mention more connections as important but understanding this aspect will be crucial for the other characteristics. Several people mentioned the importance of the Forest to CU as a land grant and all that entails. The following quote represents this idea best:

> *"Clemson could make so much headway as a Southern land grant, if they would just be, instead of reactive…once somebody… if you're outed, if somebody says, if somebody gets a hold and writes a story of how Clemson had suppressed, all of this [history] then how do you look? As opposed to saying, 'you know what, palms up, this is what's happened here.' You know, and, and it's not something… we're not proud of who Calhoun was, but he was who he was. He was, uh, a man of, of his historic times. This is who Thomas Green Clemson was. And by God, this is who friggin Ben Tillman was. These are the people that suffered under this. Now we want to do better. And this is how we want to do that. Just as forest recovers from wounds, we want to, we want to try to recover from the ground up, who we are. That's what a land grant to me is. And we're so busy trying to be other things other than a land grant. You know, you have people who leave that don't even know there's a forest there. Or they don't understand who owned that land or understand that there was one of the most significant, lower Cherokee towns on that river. They don't understand any of that."*

> *"This is not about locking up the forest. But this is also not about opening up all the parts. This is not about selling the forest."*

7. Spirituality

The spiritual value of nature is always a complex idea, let alone justification for management of nature. One's spirituality is a difficult quality to express to others, even within one's own belief system, let alone beyond it. Furthermore, how do you manage for the opportunity and space for spirituality? However, several people interviewed expressed that the spiritual component of nature is a critical reason for people to value nature at all and that the spiritual aspect is a big purpose of the Forest that extends to individual meaning and a sense of connection and place. Even when interviewees didn't explicitly address spirituality, they referenced it when saying that "walking through the Forest is [their] medicine" or that "it brings [them] a sense of calm."

Several interviewees identified the spiritual connection to the Forest. This spiritual connection mimics a general expression of a spiritual connection to nature in general. This expression of a spiritual value might be foundational to the other categories. Several interviewees mention a general and vague spiritual enlightenment or empowerment or just a sense of comfort and peace. When asked if access was important to an interviewee, they responded: "Personally, yeah. For social justice. And if we… look at our culture right now. If we say that the North Forest is for mountain bikes and the South Forest is for horses, then two very different user groups stop communicating. And one of the most lovely things that happens on any ride is when somebody is surprised in a positive way by the kindness of another user. So, if in any way we make it homogenous, we take away that opportunity. And, to me, that is one of the most socially relevant opportunities." They later added that that connected idea of access and social justice

underlies their spiritual understanding of interacting with each other. Others casually mentioned their church when asked about the Forest and another interviewee mentioned pagan covens using the Forest for their spiritual activities.

The idea of the spiritual value is further exemplified by an interviewee's response that "Every place on the planet is special if you understand what it is."

8. Existence value

Throughout the research, several sources of data reminded me that the actual Forest is first before anything else. The Forest that is made of trees, creeks, soil, and animals is foundational to any discussion of other purposes. It's easy to forget this when discussing economics or other values and only see the trees for the forest. This is seen as the existence value, that the mere existence of the Forest is important and primary to everything else.

The existence value is interesting because it is a component of the Forest that can be directly seen and experienced, yet few interviewees directly spoke to the Forest's worth unconditionally. Only one interviewee said "that the fact that it exists is reason enough" but several other interviewees referenced the existence value indirectly. This is acknowledged with statements such as: "you can't recreate a Clemson Forest, once you've developed," "let's establish a goal of no net loss of acreage," "our land is [CU] mission critical," "you can't duplicate the land: the size, the role in the South Carolina," and "[CU] needs a green arrow in their quiver."

The "no net loss of land" is a valuable comment that helps interpret other responses when development threats or establishing a conservation easement were

discussed. When protecting the Forest was discussed with an interviewee outside the system, they said: "…that was our president's comment: I will not tie the hands of future shareholders and managers [with a conservation easement]. And I said: is it tying their hands or is it unlocking a different set of values?" A community member was asked if the fear of loss to development contributed to their interaction with the Forest and they responded with: "To me, this is what the asset of the Forest is- and I actually love that it's a working forest. I think that's a really neat thing to say to kids. To say that these spaces can exist with multiple ways of functioning. It's not just here for your entertainment. It's not just here for- places we use to recreate have to be funded in some way. They have to be, whether that is the municipality funding them or tax dollars or grants, they have to be funded. And the fact that the University owns this Forest, I think, one of the things that I worry about as a resident is that it will be taken away. That it will be seen as an asset for development that would be more commercially viable- to be seen that way by the Board of Trustee's or whoever else is making those decisions. And, they would overvalue the price of the land and the access to the lake- and they would undervalue the benefits to our health and wellbeing and how people do use it. And I don't think the University is doing enough to leverage and teach people how to use the Forest. We've got a great leisure skills program that does a good bit of that, but that is a lot of land that is not overcrowded by any stretch." Another community member repeated the sentiment: "I will tell you we've had the conversation recently that if the University up and decides to sell off parts of the Forest, would we still want to live in Clemson? And for us, we would need to

move. We'd lose such an asset that is so important to us in terms of our day-to-day life that we would move."

9. Boundaries Out

The Forest is understood to be the land within the boundaries but there are also important impacts and effects outside of those boundaries. Whether they are ecological, social, or regulatory impacts several interviewees addressed the fact that what occurs within the bounds of the Forest has repercussions elsewhere.

Several people mentioned that the Forest should be compared to other forests, including university forests, working forests, or others. These are identified in Table 4. Other interviewees recommended that we search out organizations outside of the system and these include the Society for College and University Planning, the National Association of University Forest Resources Programs, and members of the Cherokee Nation. Ecologically, the Forest has been identified as a "crown jewel of the area" and as "a green spot on the map" that acts a climate refugia. Especially as sprawl development increases along the Charlotte to Atlanta Corridor, natural resource protection becomes increasingly important. The discussions with interviewees about these responsibilities of the Forest to non-Forest-system components opened up several discussions about the role regionally and globally. One interviewee discussed how the Forest as a reforestation project almost one hundred years in the process can contribute to current forestry issues relating to China's massive Grain to Green project or Brazil's challenges with the deforestation of the Amazon. In discussion with a representative of the Society for College and University Planning, it was mentioned that there is little known about how

forests contribute university planning within the United States. The statement that sums up much of the boundaries-out perspective is: "…but even if you've never set foot in the boundaries of the Clemson forest, you're still interacting with it."

More specific to the Forest, an interviewee made it clear that there is potential of setting national precedent of amending the federal Bankhead Jones Farm Tenant Act if development decisions are made here that challenge the provisions of the Act. This is a very interesting statement that is followed up upon in Chapter 3 section on threats. Similarly, it will be explored further in the Rupture of Normativity section in Chapter 4 but it was discovered that the connection to the Cherokee Nation has been almost completely unexplored.

Discussion

Both the forest and the extended Clemson community are growing interdependently. Simultaneously and because of this growth, the forest is facing threats that challenge management activities. If we're to understand both the growth and the threats inherent in impending transitions or even transformation, we need to understand how the forest is perceived, how it is valued, and how it is a part of the system in terms of alignment with intended management. The land was reforested for purposes of community development at a time when the environment was in dire need of rehabilitation and the surrounding community needed guidance on appropriate interactions with nature. Today, the Forest is a vital aspect of the lived experience in the greater Clemson community, and is foundational to the coupled natural and human system. To best understand this system, the Purpose of the Clemson Experimental Forest,

as identified by the nine social values determined from this research, is identified in Table 5.

Table 5. The Purpose of the Clemson Experimental Forest as identified by the nine social values.

Economics with a focus on timber forestry	The utility of the land is integral to how the land is valued and perceived. The only source of revenue generation has been timber harvest, and this activity has been the driver dictating management actions.
Academics	Teaching and research are two of the most important values of the University. The utility need of providing revenue to maintain operational capacity is necessary but the academics are why that operational capacity is needed in the first place.
Quality of Life	One of the major reasons why people choose to live in the Upstate of South Carolina is because of the quality of life it affords. A high quality of life is an important characteristic for CU faculty, students, and community members that benefit from cleaner air, cleaner water, access to natural areas for themselves and their family. A higher quality of life that is aligned with the individuals' values provides for recruitment, retention, and wellness of the Clemson community.
Recreation	Similar to a higher quality of life, the recreation opportunities provide avenues for self-expression and enjoyment. However, recreation also offers opportunities for people who live throughout the region that may not otherwise benefit from direct quality of life impacts.
Communications	Because the Forest system involves so many people at different positions within and outside the University, how the management and stewardship of the Forest is shared, communicated, and brought into dialogue among stakeholders is an integral component of meaning making.
A "20,000-Acre Campus"	The Forest is an extension of Clemson University campus: it is campus. Much like the buildings, plazas, and sports stadiums, the Forest is a part of the University and the integration of the Forest into a perception of the holistic University opens up a wider variety of opportunities for discovery through academics, as well as revenue generation and a general sense of place. As the campus is connected to the community, so too is the Forest connected to the extended Clemson community.
Spirituality	Participants often shared that more than the other values, the capacity for the Forest to rejuvenate them and "refresh their spirit" is a primary concern. This spiritual component means different things to different people but the ability to find solace from the caprices of life, to re-create themselves, to find connections with nature, or to experience wonder are all values placed on and experience with the land.
Existence Value	Similar to the spiritual value, the existence value is important to people. While many people discuss the experience of being in the Forest as having a spiritual component, the fact that the Forest merely exists is pertinent to participant's concern for the Forest. Even if they don't step foot in it or if it is long time between outings, knowing the Forest is there is necessary for participant's extended sense of place and well-being.
Boundaries Out	The Forest exists in concert with systems and entities beyond the borders. It is important to university values, to other forests, to other research stations, and to other natural places. What occurs within the Forest will impact laws and regulations nationally, research and management in other universities, natural resource protection, the consequences of re- and afforestation projects globally, historical examinations, and more.

When assessing a habitat, natural resource surveys can provide us an inventory of the habitat's health. Similarly, if we're to understand the characteristics of a CNHS like the Forest, the values need to be identified. And if we're to understand where the CEF is in transformation for the sake of making better management and planning decisions, we need to understand whether these values are in alignment with the stated mission or official purpose of the Forest. A comparison of these different perspectives is shared in table 6.

Table 6. A comparison of different perspectives of purpose of the CEF.

Source	**Perspective of Purpose**
CEF Mission	The prime directive for the forest is to be a well-managed, self-sustaining, ecologically healthy, living laboratory, classroom and recreational resource for the benefit of the university, commerce and citizenry of South Carolina, vouchsafed with a mandate to protect and promote in perpetuity the forest as an irreplaceable educational, environmental, scientific and social asset.
CU Public Service and Agriculture	Teaching, Research, and Demonstration
CU Office of Land & Capital Asset Stewardship	Timber Asset, Agriculture Asset, and Development Asset
The Purpose of the Clemson Experimental Forest as identified by the nine social values	Economics with a focus on timber forestry, Academics, Quality of Life, Recreation, Communications, A "20,000-Acre Campus", Spirituality, Existence Value, and Boundaries Out.

This research demonstrates two important factors for understanding the purpose of the Forest. First, there is a lack of alignment within the official management perspectives of the purpose of the Forest. Second, the data shows that the purpose of the Forest contains more values than are currently recognized by CU management and administration. These results can help decision makers both bring alignment within CU

administrative channels and also expand the capacities for the Forest to be more integrated into the CU identity, to be a better community asset, generate more revenue, and offer more robust ecosystem services.

Conclusions

In Wild Design, Yung, Cole, and Hobbs recommend developing principles to guide goal development (adapted from p. 255, 2010). Primary in their principles is to "provide clarity in purpose, approach, and desired outcome." Economics with a focus on timber forestry, Academics, Quality of Life, Recreation, Communications, A "20,000-Acre Campus", Spirituality, Existence value, and Boundaries Out, can be identified as an important starting point to better understand the socially co-constructed perceived purposes of the Forest. As the pressures, needs, and perspectives about the Forest have grown, the purposes have also grown, and a recognition of these values will help management decisions adequately adapt to the system in transformation.

While the concept of value and valuation is intrinsic to the questions we posed to people and artifacts through 'what is the CEF for,' we were careful in our recognition that framing the characteristics of the Forest as a monetary value automatically frames the question as the Forest having to prove its worth. One of the (re)discoveries from this research is the importance of the CEF as a covenant to the welfare of the people of South Carolina and the United States. Indeed, as some interviewees interpret the legal commitment, the CEF cannot be sold off or developed without having a US Congressional amendment. In fact, several explicitly said they aren't afraid of fighting for it because their interpretation of the laws is that the Forest is protected. However, a

history of land swaps and re-interpretations of development on the Forest property have shown that there are legal loopholes to this. More to the point, both through the concept as a resettlement land and a land grant school, the Forest is both property of Clemson University as a "custodian of the project" that needed stewardship on behalf of the United States, and as commitment to the Land Grant mission. The Forest isn't just an asset as a building or other object of capital for the university, it is a covenant to the rest of society that CU will steward the land. The double bind that Forest management finds itself in is how to achieve the responsibility of that custodianship that CU has agreed to with the financial pressure that the land provides.

Another important consideration is that the value of this Forest helps us understand the value of forests in general. Meaning, many of the problems this Forest is facing are problems other public forests, other university forests, and many natural places face. Some of the bigger problems are how do you get users to not take it for granted, how do you defend land against the pressures of sprawl when the development potential and subsequent financial gain is so high, and how does a society retain the ecosystem services of a natural place that is simultaneously threatened with overuse? So, the question then becomes not, how do we monetize the assets as they are, but rather, how can this place fulfill its covenant to society and simultaneously pay for itself? This is a minor shift but an important one when we consider the expected novel changes of sprawl and the full repercussions of a climate that is changing.

One interpretation of the nine purposes of the CEF is that it becomes not only a place to figure out how pay for itself for others to benefit, but also a place to address

expected and unexpected futures with unprecedented challenges. For example, the CEF has used timber as the primary revenue generation. But one of the results of this research is that the economics of the CEF is limiting itself unnecessarily in only valuing timber. There are other important purposes of this Forest that have yet to be explored. A better understanding of the integration of valuing assets over time and in various contexts will be explored in Chapter 3.

Another interpretation is that these nine purposes act as a stepping off point for research in a living system where the community will perpetually redefine itself. The greater Clemson community is a dynamic university community with creative and intelligent residents deeply invested in the school that is the source of their academic profession and personal self-actualization. Coupled with a student-body that is seasonally in flux, the system is a nexus of myriad values and beliefs that express themselves diversely. This evolving discovery is a discovery of novelty rather than of the past, a discovery of becoming rather than a discovery of being. This is exciting because it means that the answers to who this community is, is not found in either the past or current assessments, but in an undiscovered possibility in the future that has yet to be attained. A more robust examination of this idea is explored in Chapter 4.

Finally, the combined socially co-constructed purpose of the Forest helps us to consider the act of re-creation in general. As an exercise in understanding the system better for the sake of living in alignment with the needs and abilities of the coupled natural and human components, the practice of conservation can be deconstructed as well. This idea is touched on in the final chapter.

CHAPTER THREE

OPERATIONALIZING THE TRANSFORMATION

Introduction

This Clemson Experimental Forest didn't exist a hundred years ago. As one interviewee states, it was "bombed out, denuded, poverty-stricken land." They had problems then that were partially solved by planting a Forest. Today the Forest exists in a new world, centered within a new society. Some of the problems of the past exist today, some are manifest differently, some have been addressed, and some of the problems are new, both within the bounds of the Forest and external to the bounds but still relevant to the Forest.

The same can be said about the people. The people that exist here today are not the same as those a hundred years ago. A hundred years ago, the entire human population existed at lower levels of health and abundance and as Hans Rosling documents in his 2018 book Factfulness: "Though the world faces huge challenges, we have made tremendous progress [along almost every metric for human well-being]" (p.13). The same can be said of Upstate South Carolina, with the author of Red Hills and Cotton describing the area in early 20th century: "As Southerners, we were among the poorest folks in the United States…Our soils were acid. We had an annual fertilizer bill in the South of a hundred and sixty million dollars; fertilizers alone consumed a large part of our farm income…We were not farming properly, we were not organized for productive effort…Our wagon was hitched to cotton's star, where it had been hitched for a hundred years…Cotton is a state of mind with us, a philosophy, and we continue to plant it in

spite of the fact that we have not made money on cotton more than once in about every ten years. We were prosperous once…We burned the wind with our sudden wealth, we enjoyed ourselves, and we have never had a regret…" (Robertson, 1942, p.156-157).

Is timber harvest a "state of mind" that is continued "in spite of the fact that we have not made money" on it as once occurred? With a different world for the both the Forest and the people, do the past lenses that we saw the land still apply and how do we conceptualize the Forest going forward?

Research question and purpose

The results from chapter 2, asking what is the CEF for, gave us the socially co-constructed purpose of the CEF and how it may exist in a state of transformation. With this, we know the system better as it currently is, and we can seek alignment in management decisions. This socially co-constructed system as we now understand it exists at a local scale within a specific timeframe. As our findings indicated in the "boundaries-out" component however, the CEF exists relevantly at various scales of space and time, being regionally important as well as positioned temporally at various stages of growth. However, whether guided or not, the CEF, like all systems, exists at different scales and has interdependent interactions that influence its evolution.

Since 1948, CU has looked at the Forest through the lens of timber, and for really good reasons. But the coupled natural and human system (CNHS) of Forest/People has grown since that time. Instead of looking at the Forest only through timber that tries to accommodate other uses as best it can, here I look at the data through a systems approach. We saw in chapter 2 what the Forest is, and here I utilize the frameworks of

panarchy, Doughnut Economics (DE), and Payment for Ecosystem Services (PES) to see what the Forest could be.

The purpose of this research is to take a complexity of values related to a university forest and identify the opportunities and threats that could result from operationalizing potential management trajectories. Specifically, I examine the data for opportunities and threats to the Forest and hope to place the Forest system within the panarchy framework appropriately to anticipate potential disruptions and utilize DE and PES to identify future opportunities for growth and revenue generation.

To elucidate discovery, ethical implications, and interplay with different scales of the national, global, and social components, the three frameworks DE, PES, and panarchy are used to examine the Forest/People system. First, the Doughnut Economics model (Raworth, 2017) of coupled natural and human systems is used to explore the threats and opportunities. Second is the Payment for Ecosystem Services. With PES we can understand how the various characteristics are valued both intrinsically and instrumentally. Third, it is through situating the system temporally through the panarchy model (Gunderson, 2001) that we can hope to understand tipping points, traps, and transformations of the system.

Literature Review

Payment for Ecosystem Services

How are natural areas funded? As highlighted by one of our interviewees:

> "*How do you value a park or recreation area and how do you get funding from the public, which is getting, which is reaping all of the good? There's no line*

between their fund, their private wealth, or the towns meager tax stream and paying for those recreational opportunities. And everything is always on the cheap and bare minimum and low budget. And that's just the nature of recreational activities. And I don't really see a way out of that unless the micropolitan area comes together and realizes how important this resource is to their quality of life. And they want to make sure there's some maintenance of trails and they co-invest with the university in ways that provide individual user fees."

This is a problem in the CEF, and not only here. Figuring out how to protect natural areas with payment structures is a problem that has had a variety of solutions proposed, including designation as a conservation area, debt-for-nature schemes, and internalizing extrinsic costs associated with general extraction. The Payment for Ecosystem Services (PES) idea is an approach that was first mentioned by Ehlrich and Ehrlich in 1981, Costanza in the 1990s (Costanza et al, 1998), and furthered by the Millennium Ecosystem Assessment (Reid, 2005) in the early 2000s. Since then, there have been various attempts to monetize services provided by natural areas. Grima et al (2016) point out that PES "correct a market failure, by internalizing environmental externalities (hitherto free public goods such as air and water) into the market prices." Further: "The two key market instruments that currently exist are: the Markets for Ecosystem Services (MES – based on the polluter pays principle) that address negative environmental externalities, and the Payments for Ecosystem Services (PES) or "steward earns principle", based on positive environmental externalities (ibid.)….The central idea

of PES is that the stewards of the ecosystem services should be compensated by those who benefit" (p.25).

Grima et al (2016) did an exhaustive survey of what characteristics of PES are successful in 40 case studies in Latin America and they found: "The key messages around what contributes to a successful PES can be summarised as follows: (a) Ecosystem services being traded: PES schemes that secure the continued provisioning and quality of a critical resource while positively contributing to local livelihoods are quite successful. (b) Scale: Local and regional scales are the most widely used, both with high degrees of success. Concerning the optimal time frame, projects operating within a period between 10–30 years, are regarded as most successful. (c) Transaction types: The use of in-kind contributions reduce the probability of failure. Those transactions are preferable rather than using only cash payments. (d) Actors involved: There is a dominance of successful PES schemes where mostly private actors are involved. Also, schemes with no intermediaries between the buyers and the sellers tend to be more successful" (p.31).

Before investigating how PES can be used as an investment scheme, it is worth pausing to examine the four types of PES as recognized by the IUCN (Greiber, 2009). They are provisioning services, regulating services, cultural services, and supporting services. The definition of each is identified below (Ecosystem services, n.d.):

> ***"Provisioning Services:*** *When people are asked to identify a service provided by nature, most think of food. Fruits, vegetables, trees, fish, and livestock are available to us as direct products of ecosystems. A provisioning service is any type of benefit to people that can be extracted from nature. Along with food, other types of*

provisioning services include drinking water, timber, wood fuel, natural gas, oils, plants that can be made into clothes and other materials, and medicinal benefits.

Regulating Services: *Ecosystems provide many of the basic services that make life possible for people. Plants clean air and filter water, bacteria decompose wastes, bees pollinate flowers, and tree roots hold soil in place to prevent erosion. All these processes work together to make ecosystems clean, sustainable, functional, and resilient to change. A regulating service is the benefit provided by ecosystem processes that moderate natural phenomena. Regulating services include pollination, decomposition, water purification, erosion and flood control, and carbon storage and climate regulation.*

Cultural Services: *As we interact and alter nature, the natural world has in turn altered us. It has guided our cultural, intellectual, and social development by being a constant force present in our lives. The importance of ecosystems to the human mind can be traced back to the beginning of mankind with ancient civilizations drawing pictures of animals, plants, and weather patterns on cave walls. A cultural service is a non-material benefit that contributes to the development and cultural advancement of people, including how ecosystems play a role in local, national, and global cultures; the building of knowledge and the spreading of ideas; creativity born from interactions with nature (music, art, architecture); and recreation.*

Supporting Services: *The natural world provides so many services, sometimes we overlook the most fundamental. Ecosystems themselves couldn't be sustained without the consistency of underlying natural processes, such as photosynthesis, nutrient cycling, the creation of soils, and the water cycle. These processes allow the Earth to sustain basic life forms, let alone whole ecosystems and people. Without supporting services, provisional, regulating, and cultural services wouldn't exist."*

The CEF is an example of what is called an "avoided deforestation PES" (p.370, Alix-Garcia and Wolff 2014). Deforestation is avoided by not giving in to development pressures or conversion to agriculture. Timber extraction is simply one of the multiple PES and seeing the Forest solely as timber is foreclosing on the opportunities as initially developed from Dr. Aull's grand experiment. Similarly, China is in the process of the single largest payment for ecosystem services program and one of the largest natural transformations but also poverty alleviation projects in the history of humanity (Lu and Yin, 2020). Called the Sloping Land Conversion Program or the "Grains-to-Green" project, they are essentially doing what Dr. Aull did with the Upstate in the 1930s at a much larger scale. Retiring marginal croplands and other degraded fields for forests, China has anticipated the PES scheme from the start, and the USDA has had the conservation reserve program (CRP) for many years, which does the same.

There are important challenges and criticisms to the PES idea. They are worth examining here before recommending proceeding with PES as a viable strategy for the CEF (adapted from Redford and Adams, 2009):

1. *"Framing the Forest only as an economic value: "…in a world of relentless pursuit of economic logic, there is a real risk that economic arguments about services valued by humans will overwrite and outweigh noneconomic justifications for conservation."*
2. *That ecosystem services are all positive: "…a widespread but erroneous assumption that ecosystem services are necessarily benign. Definitions of ecosystem services cite positive values Nevertheless, not all ecosystem processes sustain and fulfill human life. Processes such as fire, drought, disease, or flood work against this goal, yet they are vital…"*
3. *If the focus is only on ecosystem services, invasive species can do that job*
4. *Focusing on only the ecosystem services of the Forest has the ability for the Forest "…to be engineered to maximize single services…the maximization of single-service provision would, undoubtedly, lead to increased ecological brittleness."*
5. *The mismatch between the stability of habitats versus the stability and existence of markets: "Markets only exist for a certain range of ecosystem services, and some services are not amenable to pricing or valuation…Markets also change rapidly, as the emerging and volatile market for carbon shows. "*
6. *The concept of access and justice within the Forest is currently experienced, although less so with ecosystem services. As stress to global systems increase, "ecosystem services become increasingly scarce and valuable, people will compete to gain control over flows of services and the ecosystems that provide them. There will be winners and losers in markets for ecosystem services."*
7. *Large planetary boundaries like climate change and biodiversity loss are being exceeded, "if we succeed in selling existing ecosystems in*

terms of their provision of services, what happens when those ecosystems break apart and reassemble in new ways""

Again, PES is intended as an investment scheme to allow "the stewards of the ecosystem services should be compensated by those who benefit." Burgos-Ayala et al (2020) studied Colombian PES and found ways to increase social engagement among all actors, including those who benefit (adapted from Aceituno, 2020):

"To succeed then, the researchers suggest five actions to be implemented by environmental managers:

1. *Promote more clearly the benefits humans get from nature in policies, plans and programmes*
2. *Ramp up education and training programmes*
3. *Make communication, education and participation actions the core of all projects, from design to implementation*
4. *Consider and engage with a more diverse set of stakeholders, above all indigenous communities and women*
5. *Develop and implement social indicators to evaluate environmental management practices (e.g., quality of participation of stakeholders involved) to complement the more commonly used environmental measures of success"*

The CEF is dealing with a local PES system addressing global scale services, is an avoided deforestation PES, and has values within the four services as identified by the IUCN. Factors that could help foster PES success for the CEF are the five key messages by Grima et al (2016). These lessons learned could help ensure a highly successful PES for the Forest.

Further exploration into a full inventory of ecosystem services that can be monetized, along with viable financial markets, is necessary. Some of these ecosystem services already have a market (i.e. timber), some are already in in-kind relationships with other agencies (i.e. water purification), and others have been identified as 'low-hanging fruit' for their potential (i.e. recreation). Looking at the Forest through the PES lens, one of the consequences is actually seeing the ES as already having assets contributing to the Forest budget that are just not capitalized upon. For instance, right now the current Forest budget is approximately $500,000 and it just covers cost with minimal profit. However, if the ES of water purification, carbon sequestration, erosion and flood control, academics, recreation, etc. are included as in-kind or non-compensated, the growth potential is expanded beyond just timber. A financial analysis that comprehensively integrates all the Forest's PES by looking at operational efficiency, specifically at inventory turnover and return on equity, could understand the growth potential best.

Using what we've learned from the artifacts, interviews, surveys, and review of other forests, a reflection on the ES from the CEF using the above framework is:

- **Provisioning Services**
  - Food
  - Drinking water
  - Timber
  - Wood fuel
  - Plants that can be made into clothes and other materials
  - Medicinal benefits.
- **Regulating Services**
  - Pollination
  - Decomposition
  - Water purification
  - Erosion and flood control

    - Carbon storage and climate regulation
    - Refuge for plant species and corridor for plant migration
- **Cultural Service**
    - Contributes to the development and cultural advancement of people, including how ecosystems play a role in local, national, and global cultures
    - the building of knowledge and the spreading of ideas
    - Creativity born from interactions with nature (music, art, architecture)
    - Recreation
- **Supporting Services**
    - Photosynthesis
    - Nutrient cycling
    - The creation of soils
    - The water cycle
    - Evolution?

Going forward, the seven criticisms by Redford and Adams (2009) should be addressed and an integration of the five actions proposed by Burgos-Ayal et. al (2020) could help smoothly transition the CEF into a "steward benefits" schema.

The criticism of Redford and Adams (2009) about utilizing PES for developing the relationship between the natural world and humans is especially relevant within the Forest and the surrounding community. In particular, the first criticism is exactly how the framing of the Forest relevance has been since 1948, seen as a financial asset. There is nothing wrong with this as long as the other values are encouraged but they run into conflict when other outside pressures like development and inside pressures like various uses run up against each other. How we understand the PES and this criticism of PES can best seen through the frameworks of Panarchy and Doughnut Economics.

The biggest threat to using the PES scheme is that if it is utilized, the PES will drive the system at the expense to the holistic view of the Forest, similar to how timber

has been the driver since 1948. Timber was one of the many values of the Forest as Dr. Aull envisioned the project, but never the sole intention. Neither was timber intended to be the best use while all other uses a result of timber being the all-inclusive best use that allows for the other uses. Timber harvest is also not in the PSA perspective or identified within the CEF mission. Reforestation for the sake of a forest was the intended use and forestry-as-timber ended up being the driver as a result of decision makers looking at highest financial asset of the Forest in 1948. Depending on how markets went in the 1940s, it could have easily been agroforestry of a food product or something else; or decision-makers could have easily just decided that the Forest was worth the erosion control and quality of life assets it provided without forestry-as-timber. All this to say that forcing a PES scheme on the Forest is meant as a tool to maintain the existence of the Forest, not the defining characteristic that drives decisions about the Forest. If this careful consideration and caveat is not included adequately with a PES scheme, the Forest will end up facing an existential threat of equating it's worth to its value and with development threats and other 'highest, best use for the greatest good' algorithms, the integrity of the Forest will eventually lose out.

Panarchy

Hollings and Gunderson's Panarchy (2001) is a way to conceptualize temporal contexts and transformations. Panarchy is a term created to describe "adaptive cycles nested in a hierarchy across time and space" (Gunderson, 2001). They use it to speak to anything that experiences a change in time but in their text focus on the socio-ecological systems (SES), such as the Everglades, fishing communities, and semiarid savannah

ecosystems. Rather than a linear, causal process of beginning to end, panarchy is envisaged as an ouroboros (figure 6). The panarchy infinity symbol seeks to explain how a system starts, goes through an ordering process in what is called the front loop, reaches a tipping point, moves into the back loop of disorganization, and then back to the front loop after a re-organization. Panarchy explains the process of transformation from release, to reorganization, to exploitation, to conservation, and back to release again, possibly at a different spatial or temporal scale (Gunderson, 2001).

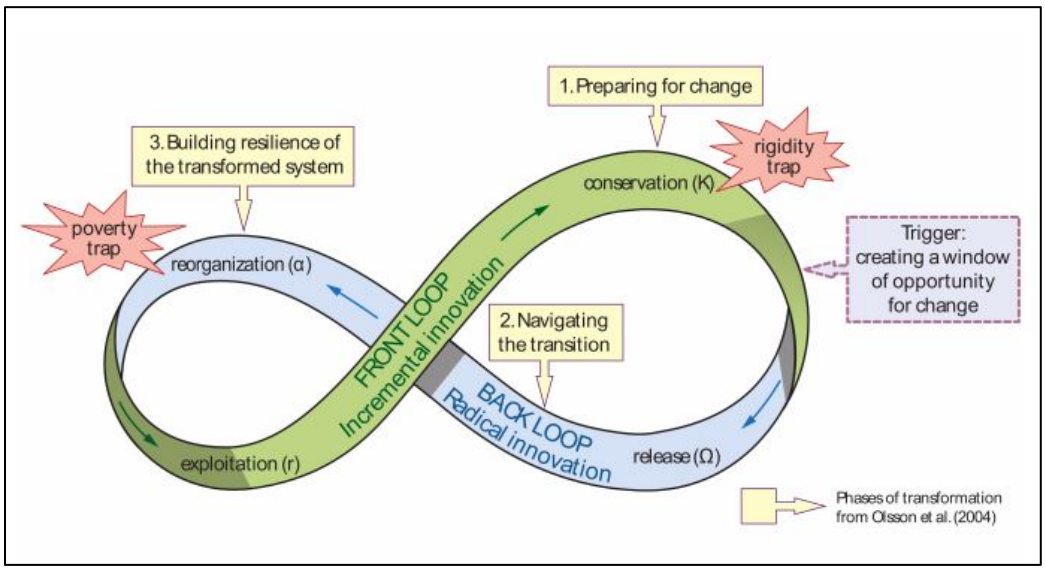


Figure 6. The panarchy loop (from Biggs, 2010)

Before discussing how panarchy applies to the Forest and attempting to understand the evolution of the Forest through panarchy, it is necessary to explain the system and define some key components of the theory. There are two major loops, the front loop and the back loop. These loops exist within an x-y axis of connectedness and potential. In the front loop there is an exploitation phase and a conservation phase. The Exploitation phase is “rapid colonization of recently disturbed areas is emphasized”

(p.33) and the Conservation phase is that "in which slow accumulation and storage of energy and material are emphasized" (p.33). They further explain this: "In ecology the species in the exploitive phase have been characterized as r-strategists and in the conservation phase as K-strategists" (p.33). The front loop is increasingly managed by bureaucratic decision-making. In the back loop there is a release and reorganization phase.

On the back loop, the Release phase is "creative destruction….the tightly bound accumulation of biomass and nutrients becomes increasingly fragile (overconnected in systems terms) until suddenly released by agents such as forest fires, drought, insect pests, or intense pulses of grazing. We designate that as the omega phase" (p.34). The Organization phase is "The reorganization phase is essentially equivalent to one of innovation and restricting in an industry or in society – the kinds of economic processes and policies that come to practical attention at times of economic recession or social transformation. We designate that as alpha phase." (p.35) The back loop is increasingly managed by adhocracy decision-making. Adhocracy is not a word in common parlance but has been used in various management theories. Coined by Slater and Bennis (1964), defined by Mintzberg and McHugh (1985), and used by Hahn (2011) in panarchy, adhocracy has been identified by many things, including: "…decentralized "selectively": power over different decisions is diffused in uneven ways, subject to the availability of information and expertise needed to deal with the issue at hand" (Mintzberg and McHugh, 1985, p. 15).

Transitioning from the front to the back loop and vice versa is a process of hitting a tipping point, also sometimes called triggers, shifts, or transformations if the stable state of the panarchy collapses and moves into a panarchy at a different scale. Alternatively, if a transition into one or the other loops does not occur, the possibility of getting caught in a trap exists. Gunderson (2001) points out that positioned at the front to back loop transition is a rigidity trap where "high connectedness … from efficient methods of social control whereby any novelty is either smothered" (p.96) inhibits the system from progressing. A rigidity or bureaucratic trap is an example of this: "trap of competency proceeds quite naturally from expert management" (p.160). At the other end, the back to front loop transition, a poverty trap lays in wait: "if an adaptive cycle collapses because the potential and diversity have been eradicated by misuse or an external force, an impoverished state can result, with low connectedness, low potential, and low resilience…" (p.95).

It is worth quoting Gunderson (2001 p. 90,) in full regarding major transformations and collapsing panarchies:

> *"Such transformations are qualitatively different from the incremental changes that occurred during the growth phase of the Adaptive cycle … They are also qualitatively different from the potentially more extreme changes in frozen accidents that can occur during the more revolutionary shift from creative destruction (Omega) to renewal (Alpha). They are transformations that Cascade and transform the whole panarchy and its constituent adaptive cycles….Major Transformations are rare and extreme because a unique combination of separate developments has to conspire*

> *together simultaneously. Some developments emerge with adaptive cycles during the back loop of the cycle, when recombinations and external influences can generate unexpected new seeds of opportunity that can nucleate and modify the subsequent phase of growth…. that can allow those independent inventions and adaptations to interact to produce a cascade of novel self-organized patterns across a panarchy, creating fundamental new opportunity. There is an "alignment of the Stars."*

The value of panarchy is recognizing where a system is for the sake of planning appropriately and potentially anticipating a tipping point or trap, to prepare for or even facilitate a transition into the next stage of the cycle. The idea of stability therefore exhibits itself in the front loop, as exploitation matures into conservation. As Gunderson (2001) addresses it: "human foresight and intentionality can dramatically reduce or eliminate the boom-and-bust character of some cycles" (p. 99).

If we're to use the panarchy idea to understand the history or trajectory of the CEF, we can clearly identify several important points in the history. The shift from indigenous stewardship to colonialism (reorganization to exploitation), the long history of slavery agriculture (exploitation to conservation), the long "poverty-infested" decades of Red Hills and Cotton (existing in the rigidity trap between conservation and release), Dr. George Aull's 8-year long effort of consolidating the land (forcing the release of the poverty trap), and the subsequent planting of the forest (exploitation) and then the decision made in 1948 to focus on management for timber (conservation). Considering that the social system around the Forest is changing (decreased timber market prices,

increased threats of development value, etc.) and the system within and including the Forest is also changing (increase in the value for quality of life through health and recreation, increase in 'cost' to Forest management, increase in projected sprawl threats, etc.), we could be approaching a tipping point from the front loop to the back loop again.

While we are not experiencing a full adhocracy (imagine a decentralized and reactive scenario where there is no guidance, only extreme reactions to whatever needs immediate attention), the system is also not experiencing an increase in conservation of all characteristics. This tension of an in-between existence – feeling both the pull of the adhocracy from the users and the demand of the bureaucracy (regulations, administration, etc.) – leads me to believe we are existing near the tipping point of the front loop and the back loop, possibly in a rigidity trap of trying the same thing over and over with diminishing results.

Maybe cycling into the back loop is a cycle of opening up the opportunities again in a non-adhocracy/anarchic way to see how society values characteristics anew to inform decisions of entering the front loop. In the 1930s, the trap they experienced was being in the double bind of cotton agriculture and a tragedy of the commons experience of multiple land owners ravaging the land perpetually, not able to remove themselves from the eddy of exploitation. The shift to the back loop involved consolidating the land, repurposing it to create a forest (to be clear: a forest, not just a forest for harvest) that restored some of the ecosystem services (water and soil retention, timber extraction rather than cotton extraction, etc.), and allowing for and facilitating new opportunities to arise. As the back loop shifted into the front loop in 1948, timber became the most marketable

asset of the original several (ecosystem services, timber, recreation, agriculture, etc.). If society had developed differently, mica mining, for example, could have been the most marketable asset and the Forest may have been a mining forest. However, for a variety of important reasons, loblolly plantation forestry for timber proved successful and the 'conservation' of the front loop solidified purpose and directed intention.

Currently, the only revenue generation for the Forest is through timber harvest, but the Forest also has many unexplored options that would require a re-ordering to capitalize upon. This may be similar to the experience in the 1930s prior to reforestation and opens up the question of whether we are currently in a trap. Panarchy literature says that when a system is found to be in a situation like this, one of two things can happen: the endless cycle of the trap will continue or the extrinsic components of the system (the rest of society) will pull it into the back loop against the will of the system. The latter experience is an anarchic adhocracy.

If transformation from the front loop to the back loop is guided or curated, it becomes less an adhocracy and more a normative conflict in dialogue with partners for the sake of identifying mutually beneficial futures. Continuing to proceed with 'business as usual' management of forestry-for-timber and accommodating for other uses (or, as foresters call it – multiple use) will continue to work for a while, especially if some of the threats are accounted for and some of the recommended prescriptions are explored. Decisions like hiring a recreation manager or even establishing a carbon market are good ideas but they are not transformative ideas and panarchy literature shows us that either a trap or a transformation is coming, if we're not there already. It doesn't mean that there is

a moral component to any of these decisions, meaning that they are not intrinsically good or bad. Decisions like these are to be judged within the context of the front loop and proceeding with incremental decisions like these are furthering the conservation.

What is exploitation and conservation to one perspective is chaos at some degree to another perspective. The moral component may be included in decision making through the various phases implicitly or explicitly but understanding panarchy is merely understanding the nuances of time and progression. To include an ethical component an additional contextual scale is required that positions the panarchy within the boundaries of the SES.

Doughnut Economics

Doughnut Economics (DE) is a framework developed by Oxford economist Kate Raworth that attempts to make the logistical and ethical boundaries of basic human needs for existence practical, pragmatic, and workable (2017). After decades of work with the United Nations, Oxfam, and Oxford, Raworth developed her theory in response to neoclassical economic models that fail to take into account the limits of the environment with which they base their theories. As she applied the nine planetary boundaries (Rockström et al., 2009), she understood that there must be a floor as well as a ceiling to create a "safe and just operating space for humanity." It's easiest to show rather than explain it (figure 7), but the 17 criteria that need to be met to keep our society functioning at minimum, thriving if possible, are based on the United Nation's sustainable development goals (SDG). SDGs were developed in 2012 to replace the Millennium Development Goals. The SDGs are: No Poverty, Zero Hunger, Good Health and Well-

being, Quality Education, Gender Equality, Clean Water and Sanitation, Affordable and Clean Energy, Decent Work and Economic Growth, Industry, Innovation and Infrastructure, Reducing Inequality, Sustainable Cities and Communities, Responsible Consumption and Production, Climate Action, Life Below Water, Life On Land, Peace and Justice and Strong Institutions, and Partnerships for the Goals. Within the upper and lower limits is where she finds us our Safe and Just Space for Humanity.

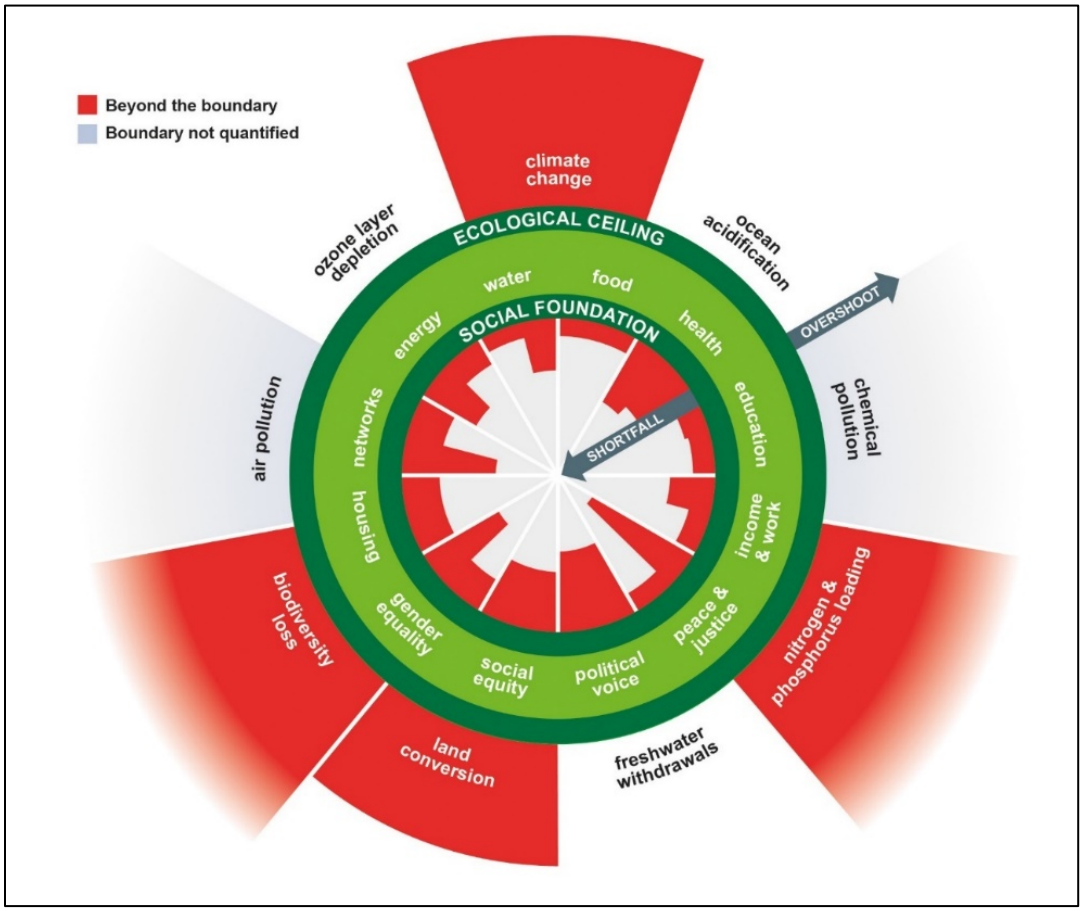


Figure 7. Doughnut economics model (from Raworth, 2017)

Within the research, interviewees and artifacts have provided information on the importance of the Forest as climate refugia, the importance as a wildlife corridor, the

challenges of sprawl development, the value of clean and accessible water, and the importance of clean air. These are just some of the components of five of the planetary boundaries that in DE parlance is: climate change, biodiversity loss, land conversion, freshwater withdrawals, and air pollution.

Methods

Approach to research

A large university forest has opportunity and potential, both realized and possible. Understanding this requires an understanding of temporal values, current values and practices, as well as information on desired futures for such a system by experts and knowledgeable actors.

Building upon our understanding of the purpose of the Forest from chapter 2, asking how we can operationalize this socially co-constructed purpose is an attempt to understand the transformation of this system. Two different circumstances led to an unexpected and different analysis of the same data. First, many people spoken to throughout the project offered their unsolicited ideas of what should be done with the CEF. As a professional who has restored and protected habitats in several places around the globe for different reasons, I found that the number of people that shared their varying and impassioned opinion about how to use the forest without being specifically asked this question was a new experience. Qualitative researchers are regularly reminded that they are the research instrument (Thomas, 2006) and, accordingly, this novel experience motivated me to pay attention to what people were telling me and document these ideas separately.

Second, when interviewees were asked about the purpose of the forest, this often led into a discussion about the problems facing the CEF. Oftentimes, it was easier for people to share their frustrations and fears rather than larger philosophical questions.

Because of these two experiences, a deductive approach to the inductively collected data identified in chapter 2 was conducted for the sake of understanding this Forest/People system in terms of transformation.

Data Collection

The main data collection methods used were interviews and artifact discovery. The data was collected inductively but then analyzed deductively. As described in chapter 2, there was an iterative process of collecting multiple streams of primary and supporting data with a continual refinement of the research. This process also occurs here where the data collected from the interviews is examined alongside the data from pertinent artifacts, specifically those from the CU Library archives, the relevant regulations, and natural resource inventories and demographics.

The formal interviews initially involved two separate approaches: a group interview of the land managers and individual interviews with decision leaders identified through purposive methods from information rich sources and ultimately, data saturation. Separate IRBs were attained for both approaches in early 2020 and the land manager interviews occurred in late January 2020 while the individual interviews started in February 2020 and concluded in July 2020. However, as will be discussed further in chapter 4, a final interview requiring two months of discussions with the Cherokee Nation to allow us to apply for a new IRB with their Nation occurred in September 2020. Until mid-March 2020, the interviews were conducted in person and then, because of the global interruption of the COVID-19 pandemic, interviews after this time were conducted over the phone or on Zoom software, “an online audio and web conferencing platform.”

Interviews were anonymous and confidential. Each participant was interviewed using a modified Seidman approach (Seidman, 2013). Unless logistics precluded the opportunity to record them or if the interviewee specifically asked not to be recorded for the sake of confidentiality, all interviews were audio recorded and later transcribed. All interviews were digitally recorded, transcribed, and later coded through MaxQDA software.

The current and past land managers were identified for their specific knowledge and it was determined that a collective group meeting of the four land managers and the four members of Dr. Elizabeth Baldwin's Conservation Social Science Lab would be the best method to collect their data. Information from the land managers is comprised of anonymous and confidential interviews of the four living land managers. This group meeting occurred on 21 January 2020, however only three of the four could attend and a follow up meeting with the remaining land manager occurred two days later. The first interview of three managers was 3 hours long and the second with one land manager was two hours long.

Three of the four land managers appeared at the group meeting and the fourth manager was interviewed separately later. Of all the interviews and research conducted for this project, the land managers are an outlier for a couple reasons. First, they have extensive institutional and professional knowledge directly relating to the CEF. Second, partially because of this experience but also because they have all worked closely together and know each other fairly well, there is a certain uniformity to their thinking. It would be unfair to say that they have one unified opinion as a group as each individual has their own flavor of opinion and perspective, however in both the group discussion

and the individual discussions, there is less disagreement or diverging opinion than found elsewhere. For the sake of clarity, the land manager's perspective on the subsequent topics as a whole is shared and qualifications are added as needed.

Artifact discovery and analysis began in September 2018 and carried through the writing of this manuscript. This process involved collecting the formal, informal, and published documents in possession by Clemson University, shared on the publicly accessible website, held by stakeholders, and environmental histories found elsewhere. The collection of this data did much to start the process of engaging with stakeholders involved in the project within Clemson University and outside of the school as well. In essence, it set the foundation of all other data collection methods. More importantly, it allowed for a more comprehensive narrative of the land as we began bounding the system. The analysis of the artifacts occurred concomitantly with further artifact collection and it also acted as a verification strategy as other data collection methods were implemented, such as surveys and interviews.

Artifact discovery and analysis consisted of six distinct categories: artifacts found in the CU library archives, previous research about the Forest, the various regulations pertaining to the land (see Appendix B), documents from the Land Asset committee, Clemson area history books, and assorted documents and project. The most valuable artifacts utilized for this analysis were the historic artifacts from the CU archives, the associated regulations, and inventories.

The CU Library archive artifacts that were discovered and analyzed included: documents from the CU Library archives in the files of Dr. George Aull, Marlin Bruner,

and the Clemson Experimental Forest, including many photos, large maps, and plats. Going through these documents was a fascinating process that involved seeing some of the original photos of the bare ground denuded by over a century and a half of slavery and extractive agriculture, discovering receipts of the original trees planted, grasping the magnitude of the resettlement of the 250 families that lived on the property that eventually became the Forest, and seeing Dr. Aull's original words about his motivation to create the Forest.

Dr. George Aull was the innovative forestry economics professor who envisioned the idea of the CEF in the 1930s after listening to US President Roosevelt's "Fireside Chats" explaining the New Deal. Through a series of actions over a 10-year period, Dr. Aull guided the resettlement of over 200 families, the purchase of the various properties to create an approximately 30,000-acre forest, the initial reforestation, and the transfer of land from the USDA to Clemson College (Crunkleton, 2012, and Sorrells, 1984). And Marlin Bruner was one of the forest managers who oversaw the operations of the CEF from 1954 until his retirement in 1971. His documents contained various fliers and articles that he wrote about recreation and research within the forest and the combination of timber harvest.

An interesting incident also occurred through this process where a previously unknown scrapbook belonging to Dr. Aull was discovered. In discussion with a CU librarian, we were able to locate several documents we would not have explored otherwise. About a week after our first meeting, she emailed us to say that she had been walking through the archives when she saw an un-shelved, large, canvas scrapbook with

the words “Dr. Aull” crossing the spine. With about 180 pages of his photos, newspaper clipping, some memos, and notes, we were able to examine new data. Additionally, we discovered that long after he created the Forest and was no longer the project manager, Dr. Aull cared deeply about the role the Forest played in the Upstate and involved in various discussions about the area.

In addition to these artifacts from the archives, other artifacts about external data, histories, and inventories of the Forest were examined. These were collected from a variety of sources and include the demographics of the Upstate South Carolina, regulations pertaining to the CEF, and other reports.

Data Analysis

While the data gathering was conducted inductively to answer the question ‘what is the Forest for,’ they were analyzed deductively in this research to ask: ‘what is the Forest?’ This question and subsequent analysis looked at the Forest through the DE, PES, and panarchy lenses and would eventually result in looking at the data to see what the forest could be by identifying the opportunities and threats that could result from operationalizing potential management trajectories.

The primary analysis method involved examining the interviews and artifacts through several rounds of coding. The software where all of the analysis occurred was MaxQDA. For the interviews, initially 1800 coded segments were produced under 10 topics. The second and third round of analysis produced 1700 codes under 5 separate topics, each containing several sub-topics that organized these coded segments. The relevant archive artifacts were photographed and coded as well. The “instrumental value”

codes of the Forest are by far the most prominent. The instrumental values are spoken to most explicitly with 147 coded segments spread across several categories, whereas the identity of Clemson was referenced in 5 coded segments and preservation value in 2. Additionally, 1 "rejection of use" coded segment was identified – stating what the purpose Forest is not - and that relates to a request for mining mica in 1955. We discovered from other sources that mining rights were retained by US government for the purposes of creating bomb material. The instrumental values are, in order of most coded segments: restoration of land (36), academic use (24), recreation (24), forestry (21), wildlife (17), public use (12), agriculture (8), real estate and land development (4), wood for instrument making (1).

The codes from the interviews and artifacts were analyzed together and thematic categories were developed for each of the five coded topics that included an understanding of the sub-topics. The five topics are Future/s of the Forest, Bureaucracy, What is the Forest – Lived Experience in the CU/CEF/Upstate System, History of the Forest, and What is the CEF for? While separate and distinct for their own explicatory purposes, these topics all intertwine and speak to one another to help produce a broader and richer understanding of each. The codes of 'What is the Forest' are shown in table 7.

Table 7. 'What is the Forest' Codes

	Family and Youth
	Youth
	Families
	Expression
	Content/material created because of CEF
	Art in general
	Sense of Self

Love – a place to bring loved ones
Romance – dating and courtship, sex
Contemplation
Empowering/place for self-creation, challenging self
Bonding/Important Connections with other people
Health
Physical health
More basic than recreation or fitness
Recovery from injury, disease, and trauma
Mental health
The sense of escape
Place to build memories
The Forest as being part of identity – knowing self through/because of Forest
Utility
Amenity Value to 'Boundaries Out'
The upstate/corporations/etc.
Commodity
Real estate value
Timber Harvest
Bringing indirect recreation funds to area
Place
Adventure in your backyard
The importance of the lakes
Geographical
Important Places
Treaty oak
Secret beach
African-American Graveyard
Lake
Conservation
Existence value
Landscape/Habitat Refugia
Ecosystem services
Water
Lake
Biodiversity/Ecological Diversity
Demonstration
Public outreach

Discovery
As instrumental lesson for others
China - maybe 'the purpose of this reforestation work globally'
Metaphysical experience
Beauty/Aesthetics
Magical place/feels special
Spirituality - connection to nature
Legacy
Consistency of purpose of CU
Consistency of purpose of CEF
Legacy of impacting people's lives
History
Community value/Town-Gown
Egalitarian – it has an equalizing effect
Public use
Educational asset for local non-CU schools (elementary, middle, high schools, etc.)
Multiple use
Access to Open Spaces and Nature
Quality of life
Employment
Socializing
Boy Scouts
Academic asset
Alumni
Appropriate forest
The appropriate forest for an R1 school
The appropriate forest for a land grant school
For CU students
Student transition into university
Recruitment of undergraduate students
For graduate students
Recruitment specifically for graduate students
Student involvement with CEF
Keeping students safe compared to other field sites
For CU Faculty
CU Faculty recruitment
ROTC

Research
Education
Teaching
Recreation
Competition/Competitiveness
Shotgun park
Birdwatching
Hike/walk/trail run
Camping
Hunting
Biking
Horseback
Boating/Lake Use
Trails/Signage

Data management

Data management of these multiple streams of data proved very challenging. Each data collection method had its own filing and organization system specific to its needs. MaxQDA software is designed to manage data from a variety of sources and it was used extensively. An audit trail and reflexivity exercises were practices throughout the project that helped immensely. Finally, the use of digital spreadsheets to manage data and online repositories to organize my photographs of artifacts and experiences in the Forest were also commonly used and regularly referenced.

Results

The process of deductively analyzing inductively collected data through the frameworks of DE, PES, and panarchy for the sake of identifying the opportunities and threats that could result from operationalizing potential management trajectories resulted in the development of three helpful instruments. The first is an "expected-found" typology that contextualized the data in explanatory ways. It was through this instrument

that the inventories of place and a more robust understanding of the pertinent regulations developed. Additionally, it led to the creation of the other two instruments, the second being the development of a list of opportunities, and the third a list of threats. These three instruments allow for an interpretation of the data that speaks to the DE and PES frameworks and place them along the panarchy scale.

Expected and Found

The expected/found table was created in an attempt to understand and contextualize the various results. Originally, I had wanted to organize them in the "Known-Unknown" methodology utilized in project management parlance (Ramasesh and Browning, 2014), but that didn't seem to capture the full understanding of the results. Instead, I developed a table that identified four types of reflection: expected and found data, expected but not found data, not expected but found data, and not expected and not found data. Being an exploratory qualitative project, the attempt was to understand the values, beliefs, perspectives, facts, and laws that create the system that includes the place, people, and history. Therefore, the expected results were less 'beliefs' than they were guiding ideas that directed the inquiry. As the research progressed, some of these expectations were increasingly confirmed and led to more strongly-held ideas, further influencing that particular line of inquiry. Reflexivity exercises were then required to help determine whether that line of inquiry was proving valuable or not and this is the intricate balance between researcher bias and researcher discernment.

The expectation side of this typology are my stated or unstated assumptions of what I intended to find through this research. Some of these expectations were

documented but others were only apparent after careful reflection. This process also evolved as new data was discovered that motivated a self-reflective examination of whether I expected this discovery. The "found" and "not found" side of the typology point to the data that was or was not discovered. It is an important note to highlight that because data were not discovered about a particular item of inquiry, it does not mean that data do not exist, just that I was not able to find or verify it. Regardless, data were examined rigorously, and the items shared in this typology are those results. While the full results are shared in Appendix D, presented here are some more important ideas captured from this exercise in table 8:

Table 8. An amended Expected-Found Typology table

Expected/Found
Sprawl pressure is real which leads to a desire to develop in the Forest, forcing management decisions to make neoclassical economic decisions of how to cost the Forest
Development and loss of land is the main thing that people are afraid of, either through 'death by a thousand cuts,' losing major continuity and connectivity gaps (developing Daniel High School, for example), "waking up and seeing bulldozers out there one day," and then losing the Forest to more of the other threats that face the area (ULI development threat)
Expected/Not Found
That the ethic of land management would change under different offices responsible for managing it. As CEF responsibility moved from the forestry department to the Office of Land Management to PSA and then included the Office of Capital and Land Stewardship, I expected different values but there is little to no evidence of that.
I also expected recreationalists to be anti-tree-cutting. But I don't think tree-cutting in general is opposed, I think people are pretty understanding of it – especially once they understand the rationale behind it.
Not Expected/Found
If we violate the BJFT Act, it would set a precedent nationally
The role of Sprawl in the micropolitan in the larger Charlanta Corridor
Forest is being prescribed by doctors to lower cortisol, blood pressure
"Clemson University sees the land as sacred"
"Clemson is in the forever business"
Not Expected/Not Found
I did not expect to find a strong preservationist mindset and I don't think we found that.

Inventories

Stemming from the Expected-Found typology is what I am calling 'inventories,' although it is less an inventory than a list of characteristics that could be identified as services. The original intention was to develop a natural resources inventory of important

aspects like the potential carbon sequestration for a carbon market, the retention of storm water, and the contribution to health and wellness, for example, but this quickly became larger than the scope of this project and, more importantly, less focused on addressing the purpose of the Forest or the opportunities and threats. To that end, the inventories say less about the purpose of the Forest directly but rather indirectly address the impact it has. For instance, we've heard from an outside expert that "a forest's main product is water," and for all the other benefits and services of forest, the availability and filtration of water is the main service for a society that is increasingly entering into a period of stochastic water supply.

'Inventories' then are a list of all the services, components, resources, and perspectives of the Forest. These were gathered from almost all data sources. The extensive data in several private reports provided by the CU Land Asset Committee contain most of this information but other sources were explored to ensure a robust list, as well as provide some verification. Anecdotes from both formal and informal conversations were helpful here as well. There are several great examples of these services that were pulled from formal and informal interviews:

- An elderly woman said that her doctor recommended visiting waterfalls to reduce her anxiety and blood pressure
- A hiker I encountered in the Forest shared that they were training for the Appalachian Trail by filling their backpack full of rocks and hiking the steepest CEF trails
- An ecologist I interviewed shared the importance of the Forest as climate refugia for amphibian species

- One interviewee shared that they've witnessed a saxophone player practicing in the Forest
- Several community members mentioned the role that the Forest uniquely has in empowering young girls to find self-actualization through mountain biking and general outdoor activities (i.e. because of its proximity to the community, the helpful character of the community that has developed around the Forest, the level of just-enough-difficulty of the trails, etc.)

Some of the important inventories pulled from this wide variety of sources include items listed in table 9. These inventories could also be seen as characteristics or identified as services.

Table 9. Inventories of Forest characteristics

Storm water flow
Potable water
Carbon
Clean air
Topsoil regeneration
Recreation
Academic
Quality of life
Timber
Agriculture
Development
Health
Ways to fulfill the land-grant mission

Regulations

Another result from the "Expected-Found" typology instrument was the development of a list of regulations and laws pertinent to the Forest. There are several regulations attached to or directly relating to the Forest. With these various regulations

there is also a series of beliefs about their efficacy, their role, and their limitations held by different social actors. For instance, many of the individuals associated with forestry that we spoke to firmly believe that the Bankhead Jones Farm Tenant Act (BJFT Act) protects the Forest and the only thing that can stop that protection is a reversal from the United States Congress. Similarly, some recreation users interviewed believe that because CU is a public land grant university that their "taxes pay for," they have a right to access the Forest. Others mentioned that whatever is in the will of Thomas Green Clemson is how the Forest should be managed (when I mentioned the fact that the Forest didn't exist when the will was created had little impact upon their opinion). Furthermore, some of the CU faculty interviewees mentioned that the Forest should be valued and utilized to the level and quality of a nationally-ranked public land-grant institution of R1 research status.

Clearly, the regulations play a large role in how people understand the Forest, its valuation, the purpose, and the past and future. Of particular interest though is that throughout the project, almost everyone involved spoke to the Forest being protected by the BJFT Act. The way I understood it from people's perceptions of the power of the Act was that the land could not be sold or developed and therefore the land was protected. After looking into the regulations more closely, I understand more nuances and possible loopholes to this. However, the point was made by one of the interviewees that while loopholes may be found or that even a reversal against the BJFT Act and disposal of land may occur here, it could potentially establish Federal precedent and have far reaching impacts for all other BJFT Act lands. Removing the protection of the BJFT Act from this

property could result in lands across the nation being susceptible to unforeseen development pressures. After hearing this, I made several attempts to contact representatives of the US Department of Agriculture for verification or explanation, but all communications were ignored. Because of this, the validity of this belief is unknown.

The way I understand the regulations is that the BJFT Act and the subsequent Public Laws 84-237 and 84-352 protect the land against "sell, exchange, lease, or otherwise dispose of, with or without a consideration, any property so acquired, under such terms and conditions as he deems will best accomplish the purposes of this title…" which are defined as "assist in controlling soil erosion, reforestation, preserving natural resources, protecting fish and wildlife, developing and protecting recreational facilities, mitigating floods, preventing impairment of dams and reservoirs, developing energy resources, conserving surface and surface moisture, protecting the watersheds of navigable streams, and protecting the public lands, health, safety, and welfare, but not to build industrial parks or establish private industrial or commercial enterprises…" and furthermore "…any sale, exchange, or grant shall be made only to public authorities and agencies and only on condition that the property is used for public purposes." While understanding the regulations best necessitates a legal interpretation, listed in Appendix B are the regulations I could discover that were relevant to the Forest along with a summary of their impact.

Opportunities

The second instrument I was able to develop was a list of opportunities. This resulted directly from the "Expected-Found" typology, but it began as just noting down

ideas people shared with me. One of the interesting and unexpected things that occurred during this research was that many people offered me their unsolicited thoughts on what should be done on the Forest.

From the very beginning, starting in September 2018, and going all the way through writing this manuscript, people have had ideas about the Forest and want someone to hear them. This is interesting for a couple reasons. First, there are a lot of very different ideas and many are potentially financially viable. Second, the fact that many people started the dialogue with this indicates something psychologically different in their approach. They weren't approaching me with anger or hostility, dismissal, or apathy. They made an introduction and invitation into their thoughts with creativity. I don't know how to interpret this fully, but it is a curious component of the dialectic.

Relatedly and third, in all my previous professional work on land (habitat protection and restoration, wildlife research, or even just establishing baseline conditions for other sites), I have never had the experience where anybody, let alone so many people, had creative ideas about a place. It is a very odd experience for me because most times in my previous work I have had to go through very focused, expensive, and time-consuming public involvement processes to guide people's thoughts and encourage their creative thinking, pay for renderings, and negotiate alternative developments. Almost my entire professional experience has been a process of people saying something along the lines of 'just don't mess the land up.' It occurred to me that the only times I have experienced people offering creative ideas about a place is when it involves their own home and how they might remodel their kitchen or redesign their lawn. The other time

I've experienced people's unsolicited creativity is through attempts at social justice reform, when colleagues have advocated for marriage equality or equitable access to healthcare. This social justice inquiry is a component that is explored more in chapter 4 but reflecting on this made me think that something ontological is happening here, that the people here and that the system here is a Forest/People system. As explored in the ontology section of chapter 4, this evidence stuck out to me and I think it reflects something foundational that people here genuinely see this place as their home, and they see themselves as an interconnected part of their home.

Whether in formal or informal discussions, I collected the different ideas. Over two years, a list has developed, and I have organized and categorized it in Appendix E. Further, I had a couple ideas of my own. I mention them here to acknowledge my bias and also as a primer to understand the issue surrounding ontology. The ontological section is more than 'ideas' which are important enough, it is rather an explication of the unvoiced understanding of the system and I am describing them as opportunities for the system rather than ideas for this reason.

While these opportunities are explored in the Appendix E and worth exploring in full, below is a list of amended ideas for opportunities with the Forest (table 10), with some of the more interesting ideas that could be utilized in the CEF:

Table 10. Amended ideas for opportunities with the Forest

Alternative Payment Structure
Carbon Market
Recreation Plan, including fees for recreation
Research
Longitudinal study of….forest living, rural forest living, etc
"...if they had started in the 1950s and said every year, there's going to be a bird survey in the same 'effing place. Every year or every five years we're going to return to this permanent plots and, and do 10 hectare plots and do shrubs and herbs and trees. It would be an ecological gold mine!"
Art
Art throughout the Forest (eg see Botanical Gardens)
AgroEcology
AgroForestry
Harvest
Idea of cutting and selling timber directly, rather than brining in a contractor
Design
Low-hanging fruit of design to experiment and see what works for larger stuff
Lake walkways
Trail connecting everything
Recreation
Nationally-renowned bike tracks
Ropes course
Cherokee
Wildcrafted land

Threats

Similar to the opportunities is the list of threats. This third instrument was developed out of the "Expected-Found" typology but was also in dialogue with the inventories collected. Collecting the list of threats was very different as only a few people shared their unsolicited thoughts and longer discussions were needed to understand their fears and frustrations. Oftentimes understanding what people perceived as threats

required direct questioning and sometimes even further digging and analysis into their answers. Different than the list of ideas, the list of threats has been co-constructed as my interpretation of what I heard people identify as threats. These are shared in Table 11.

Table 11. List of potential threats

Threat	Description
Sprawl in	Development incursions into the forest, death by a thousand cuts
Sprawl out	The role that a contiguous Forest plays in the ever-developed Charlanta corridor
Bankhead Jones Farm Tenant Act	Setting national precedent of disposing of land granted by the Federal government
Abdicating management responsibilities	Having the Forest defined for you by not getting ahead of it. The fact that this research is funded by administration is evidence that this is clearly not abdicating any responsibility however the threat of continued adhocracy is present.
Paper park idea	Managing the Forest for a variety of values in word only - outreach, research, education: what metrics are used, what management strategies are utilized
Mistrust of administration by community	The threat of losing the Forest to development pressures is felt by the community - the ULI situation, un-communicated tree cuts, and loss of lands around RC Edwards are examples of this. Similarly, even now, there is a stated belief among administration that no real plans for development were floated with the ULI idea and that the BOT sees the land as scared. However, evidence to the contrary (see website about ULI development) is far more prominent in the perception of the community.
Mistrust of community by administration	The administration sees the community as not knowing what the Forest is for, not knowing the history of the Forest, not contributing financially to the upkeep of the Forest to assuage the value that development could bring, and in general being a cost through non-timber resource allocation.

Ontological origins	There is a belief by administration that the Forest is for forestry and multiple use forestry specifically. However, one of the readings of the evidence is that forestry for harvest was at best one of the several equally valuable purposes of developing the forest in the 1930s. There was a very specific shift in 1947 toward forestry for timber harvest as the primary value and multiple use accompanying it. Forestry for community development was the primary stated value from Dr. Aull. This is only a threat when the Forest is now only seen as forestry for timber and associated multiple use management. However, as this Forest is a socially co-constructed entity, moving the goal-posts back to either the Morrill Act establishing the purpose of land-grant schools or even to Thomas Green Clemson's will could be interpreted as different ontological origins. The point is that forestry as timber harvest with associated multiple use was never the explicit intended purpose and a choice to continue forestry as such should clearly acknowledge this decision.
People are short-sighted	"We have a habit of doing things based on our own lifespan as if before we came aboard it was the same as when we did come on board. And we forget that it has been many years before that. …" - fighting adhocracy but also the fallacy of action bias
"It can't be everything for everybody"	Taking a parts-based approach toward satisfaction or "satisficing"
Definition of development	"Development means development for CU, not development for WalMart…"

One of the biggest threats, spoken to directly and indirectly in much of the data, is the threat of development. The American South has a population of over 97 million (Southeast States, n.d.) and South Carolina specifically had a population of 5.149 million people in 2019 (US Census Bureau, 2019). What has been described as the Charlanta Corridor or the Southern Megolopolis, the American South is expected to grow 101% to 192% within the next 50 years (Terando et al., 2014). This regional trend is reflected in the change in population growth in South Carolina counties surrounding Clemson University from 2010 to present (South Carolina Demographics, n.d.):

- Growth since 2010 in Greenville County: 16.98%
- Growth since 2010 in Anderson County: 9.51%
- Growth since 2010 in Oconee County: 7.95%
- Growth since 2010 in Pickens County: 6.8%

Related to population growth is land ownership and demographics. Out of the 50 states, South Carolina ranks 30th in the nation in federal land ownership and the federal government owns 4.64 percent of South Carolina's total land, 898,637 acres out of 19,374,080 total acres (Federal land policy in South Carolina, n.d.). Of this 4.64%, the U.S. Forest Service owns: 44.32% (867,199 acres), the U.S. National Park Service 2.03% (39,754 acres), the U.S Fish and Wildlife Service 24.67% (482,694 acres), and the U.S. Department of Defense: 28.98% (567,072 acres). Approximately 90% of the land in South Carolina is privately owned (South Carolina Conservation Bank, n.d.), which opens up the challenges of intergenerational wealth transfer and a cycle of land loss and abandonment to sprawl development as younger generations inheriting land stand to benefit from land fragmentation.

An important point needs to be made about this list of threats that differentiates it from the list of ideas. While the ideas are simply a listing of thoughts, the threats are directional, meaning that they are pointing toward a source or object identified as a problem. I have categorized this as administration pointing to community, community pointing to the administration, and the threat of/to the outside world.

The perception of the threats is difficult to untangle, and it is challenging to know whether perceived threats are actual threats. However, as the Thomas Effect tells us: “if people define situations as real, they are real in their consequences” (Morris, 2017, pg. 5).

Similarly, even if people aren't sharing their fears or threats, it also doesn't mean that those threats aren't considered. They may just feel safe or ignorant of other information. There are several ways to interpret the threats as understood by the social actors. First, there may be an expectation that the forest is beyond any real threat. In discussion with several community members, they may "just expect it to be here" and that "no *real* threat can occur." This was also shared by some of the more knowledgeable members with the CU system. Several interviewees stated explicitly that the BJFT Act would protect the forest from any significant loss. On the other end of the spectrum, some recreationalists interviewed took it "completely for granted that the forest would be here," not knowing that "there were any threats to the forest at all."

Second, there was an apathy or resignation among some interviewees that they expect the forest to be lost at some point "like all the nature is." This doesn't seem to be a prevalent interpretation among the interviewees within this research but one that I anecdotally recognize in the public at large and in mass media communications. This will be explored a little more in chapter 4 and 5 but I mention it here to point out that this might be indicative of something larger.

Lastly, there is a belief that "forestry is going fine" in the forest. This sentiment seems to run the middle ground of the previous two interpretations and also carry with it the action bias that any plan of action is a substitute for a good idea (Patt and Zeckhauser, 2000), that order of any sort is preferable to disorder of any kind. This is explored in chapter 4, but I mention this here as a nuance to both the previous interpretations that could be disconcerting if accepted at face value.

One possible misinterpretation of the threats to note is that each threat is seen as an absolute. It would be a mistake to read these threats as something like "all administration sees all of the community as all of the threats" or same with the community. This is merely a list of utterances that I have documented from one group of social actors attempting to understand where threats to the Forest originate from. Similarly, even with each of these statements, qualifications, nuance, and recognition of personal responsibility usually followed immediately after. Considering that this is a complex system existing at multiple scales, I think it is fair to acknowledge that people recognize that what may be a problem originating from one group is irrelevant at a different scale and that more variables are possible.

Discussion

Among some of the other opportunities and threats mentioned, the Forest has been described as "under-appreciated" by CU which "hasn't invested much beyond timber" harvest activities and that it is also taken for granted by the community who "does not pay into the management" that facilitates their use of the forest. But this is neither of those groups' fault. In fact, the sense of willingness to contribute to "a good plan" was a sentiment shared by most interviewees, along the spectrum of decision-maker to occasional recreationalist. The shared forest/people logistical system just does not have the capacity to accommodate other PES, as it is challenged by the reliance on timber, thus making it susceptible to the threats of development or any other comparable or lucrative alternative.

Progressing this research to open up the system to more value-adding capacities can take different avenues. Two options can help this process: engaging stakeholders appropriately and participating in an exercise to "downscale the Doughnut… turning it into a tool for transformative action."

The problems faced here in this system are not unique problems but any interaction between stakeholders to collectively solve problems together is always a novel process of discovery. Every community and system have their own character and the stakeholders in each system exist along a spectrum of expert to novice, as well as various levels of investment. Integrating these various opinions and interactions for progress in the system will be a conscious choice of decision-makers. Lauber et al (2012) has a helpful typology of stakeholder engagement in wildlife management that could be helpful here (Figure 8). Each approach has strengths and weaknesses and may be constrained by extrinsic factors as well, but the recognition of these approaches may be helpful for management to proceed.

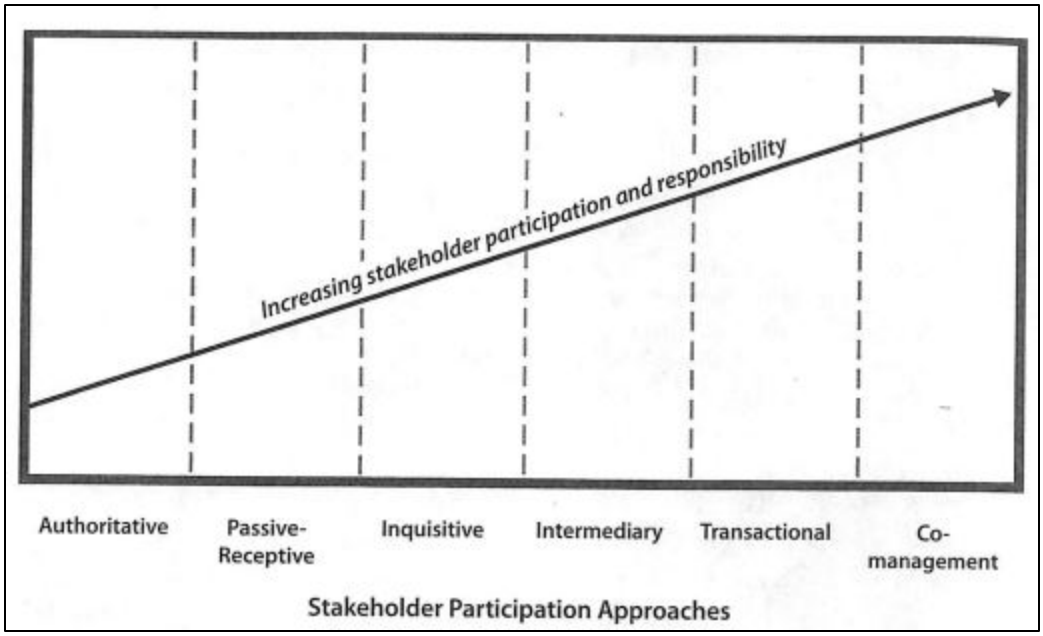


Figure 8. Stakeholder Participation Approaches, replicated from Lauber et al (2012)

Whether an authoritative or co-management approach (or anywhere in between) is taken, integration with stakeholders is necessary in a system. Raworth (2017) has recognized that her Doughnut has the ability to be too abstract to be applied locally. To this end, her DEAL lab understands that the DE idea is utterly unrealistic without the active participation of the people that it impacts. In each locale that is attempting to address these difficult coupled natural and human system issues simultaneously, they recommend an equitable dialogue throughout the social strata and help us by proposing that we ask the following questions (Fanning et al, 2020):

"•What would it mean for the local people to thrive?

•What would it mean for the local people to thrive in their natural habitat?

•What would it mean for the local people to respect the well-being of the people worldwide?

•What would it mean for the local people to respect the health of the whole planet?"

DE is revolutionary work because it actively takes the guesswork of how to live safely together and applies researched and rigorous scientific approaches in a way that simply explain our needs. It attempts to quantify humanity's needs and qualitatively improve life and society. These four questions have been used as community outreach and re-envisioning practices in places like Amsterdam, Portland, and Philadelphia to impressive ends, but this exercise is still new. Even if asking these questions occurs only as a mental exercise among decision-makers, it is a helpful step to understanding the bounds of a system that includes nature and people.

Addressing the Columbian study on PES again (Burgos-Ayala, 2020), ecosystem management projects have a higher rate of success when they're made relevant to the local community. Additionally, with the accessibility of the Forest to the community, there is a large potential to address Sustainable Development Goals within the system and actually encourage meaningful discovery of SDG pathways within the region, one of the most impoverished areas in a developed country. What has been an under-appreciated or unacknowledged asset of the CU, could, through utilizing these results and frameworks, again become one of the greatest strengths of the region. Or, once again, as one interviewee put it: "this forest saved the Upstate." This was the intention of Dr. Aull in the 1930s and much like his efforts then, we can assess whether we've "hitched our wagon" to a "state of mind" of timber or expand the capacity of the Forest to contribute into the strength of sustainable development.

This begs the question of what role, or maybe even responsibility, does the Forest have in regards to the social foundation. The American South regularly experiences many of the lowest rankings in many of the public health and wellness metrics. According to the US News and World Report, South Carolina is ranked as #42 out of the 50 Best States in 2019 (2019). They base their analysis on the following metrics: health care, education, economy, infrastructure, opportunity, fiscal stability, crime and corrections, and natural environment. The Opportunity Index measures opportunity, economy, education, community, and health and ranks South Carolina #38/50 (Opportunity Index, n.d.). According to the World Population Review which assesses multiple data sets but primarily the US Census (South Carolina Population, 2020), South Carolina ranks rather low in several important characteristics (Table 12).

Table 12. South Carolina ranking of social characteristics (SC Population, 2020)

Quality of Life	42/50
Healthcare rank	36/50
Education Rank	43/50
Economy Rank	16/50
Crime Rank	46/50
Literacy Rate	85% (37/50)
STD rates	4th highest
Public School ranking	43/50
Public School quality rank	42/50
Public School safety rank	41/50
Household income:	9th lowest
Poverty rate	14.79%
Obesity rate	34.1% (10th highest rate)
Unhealthy states	9th least healthy
Life Expectancy	41/50
Domestic violence	43/50

These social characteristics are unfortunate and stem from a variety of causes that is beyond the scope of this research and my own field of study. However, as the population is expected to grow, I would assume these social aspects will be challenged even further. Additionally, this increased population and subsequent development will put pressure on public lands in two ways: demand for more land protected and demand for more access to public land.

Conclusion

The Forest is loved by many. As a place for re-creation and recreation, the forest is a part of the community in a variety of ways. Appendix F shares some photographs of the ways this Forest has been a part of the community during the time of this research. This is integration is valuable and the integrity of the identity of place is important to maintain, even while anticipating transformations. As Sagoff (2007) reminds us, it's not only about what we want but about who we are.

Having explored the Forest system through this multiplicity of data sources and contextual models, future work can begin to guide the Forest system along the panarchy scale, within the DE framework locally, and establish a robust PES scheme to increase diversification of monetary contribution beyond the ecosystem service of timber. The opportunity to expand and discover the ethical development of the system is explored further in chapters 4 and 5 but this also is an important option for future research of the CEF and the system's perpetual understanding of self.

To contribute to this dialogue, the three instruments of the "Expected-Found" typology, the list of opportunities, and the list of threats can help position the

Forest/People system along the panarchy framework. While the Forest/People system exists at multiple scales spatio-temporally, the results of the data analysis through the three instruments indicate that the system is currently existing somewhere along the top of the panarchy model (see figure 9). While the drastic increase of population, access, use, and sprawl development threats are "pulling" the system in an adhocracy along the back loop, the Forest is still tightly controlled by timber management and increasingly guided by multiple use forestry decision making, as indicated, for example, by CU's recent hiring of more forestry professionals. This could indicate that the Forest is still in the maturity of conservation or in a rigidity trap at the top of the front loop, being pulled in a manner of "drift" (Aplet and Cole, 2010) toward the back loop. However, the fact that CU administration has funded and helped guide this research project is a prime example of decision leaders' interest in change.

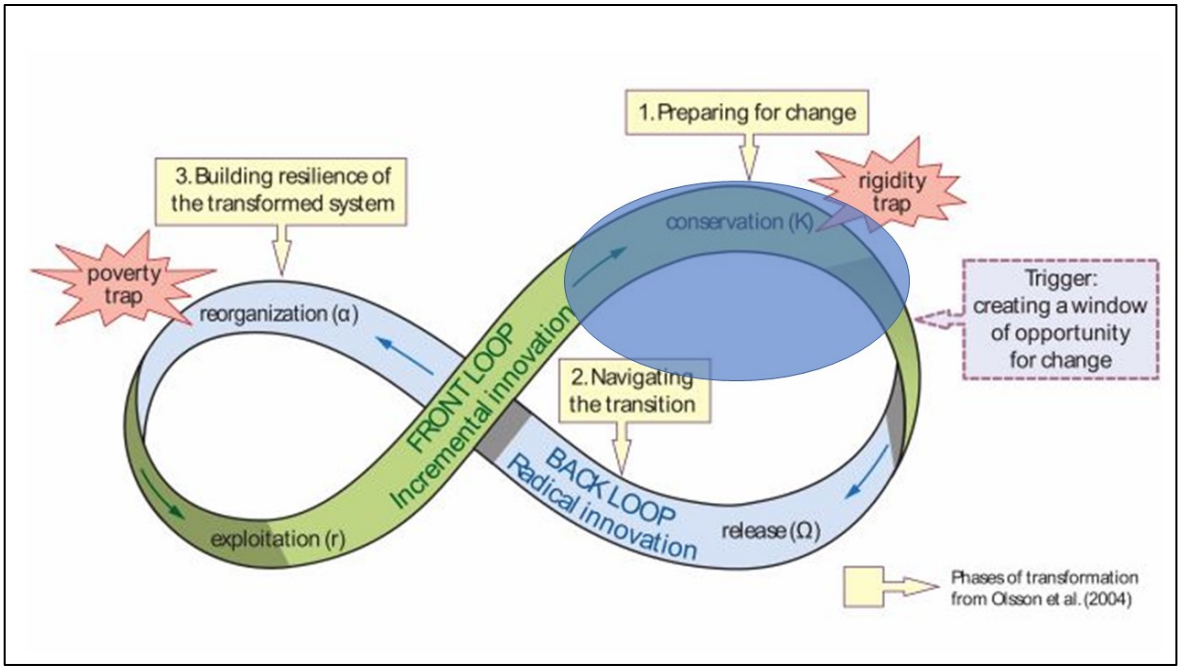


Figure 9. Current placement, in blue, of the Forest/People system along the panarchy model (adapted from Biggs, 2010)

Shepherding the system into the back loop might be a helpful management option. A parts-based approach, like a recreation plan that is not integrated with the other values, would not be an innovation; it would be an extension of multiple use accommodating to the institutional bias of harvest. The list of ideas examines several approaches, including some very interesting ideas that would qualify as a systems-based "radical innovation." An illuminating example would be the idea of placing the Forest in a Carbon Sequestration Market. If done with a systems-based approach of the other values, this innovation could be the trigger to transition into the back loop. Indeed, this was one of the paradoxes encountered in the data. Some decision-leaders were very opposed to a conservation easement associated with a Carbon Market, viewing it as "tying the hands" of management. However, sometimes within the same discussion, we regularly heard that

CU “sees the land as sacred” or that “Clemson is in the forever business.” Options like conservation easements on only part of the land or 100-year easements, rather than in perpetuity, may assuage these concerns and prepare the system for change.

Reacting to the Forest system drifting into the back loop may be another reality, however. A small example of this was witnessed when the public demanded unfettered access during the COVID lockdown of 2020, but it could also occur due to results from climate change or other extrinsic sources. The worst-case scenario of this drift would be finding the system in a poverty trap as it was prior to Dr. Aull’s involvement in the 1930s. Utilizing the DE framework to situate a PES model could open up innovative possibilities to generate revenue, align the mission of the Forest with on-the-ground activities, and re-create the identity of the Forest within the Forest/People system.

As all systems are, the CEF is in a state of transformation of different scales. The various scales have interdependent interactions with the bounded system of the CEF that impact the path of that transformation. To inform management decisions best, the cross-scale context positions the socially co-constructed purpose. This research of identifying opportunities and threats builds upon the research that determined the purpose of the Forest to help anticipate growth or impacts from the surrounding or interwoven scales and guide decisions toward regenerative growth that facilitate abundance across the coupled natural and human system. The explanatory contexts of DE, panarchy, and PES allow us to position the purpose of the forest (Economics with a focus on timber forestry, Academics, Quality of Life, Recreation, Communications, A “20,000-Acre Campus”, Spirituality, Existence Value, and Boundaries Out) spatio-temporally. With this

understanding, management decisions can be more cognizant of external impacts and repercussions, and the anticipation of traps, tipping point, and paradigms can be integrated in alignment with organizational goals.

CHAPTER FOUR

RUPTURES OF NORMATIVITY

Introduction

The three-year exercise of discussing the forest with many people who are involved with and care about it provided a wonderful opportunity to see the natural world and community through other peoples' eyes. The relationship people develop with the system is an intimate one where they express themselves creatively, raise their families, re-create themselves, and simply appreciate. Inviting me into their world, even if briefly and focused on this one subject, is a privilege and honor to share. Interpreting their perspectives and opinions through explanatory frameworks is an attempt to embrace that honor and redouble the effort to value the system appropriately. It is through this effort of examining value and respect for the forest that further explanatory research requires a critical inquiry.

We asked about the purpose of the Forest and an abductive process of developing threats and opportunities helped explain that purpose through spatio-temporal frameworks for monetary capacities. As the research progressed however, 'What is the Forest?' became an increasingly relevant question when it was discovered that different people were giving us different perspectives of how they saw the Forest. Some saw it ontologically as a bunch of trees, others as wealth, and others as a place to ride bicycles. When the shift to trying to understand people's opinion of ontology occurred, it became increasingly relevant to ask whose ontology and who is being left out of this discussion. We have a rubric of understanding the forest through the tools presented in the previous

chapters, but we don't have an essence. 'What is the forest' was an unintended question, but a question that became inescapable as contrasting experiences occurred. In an attempt to make sense of confusing experiences, a further question developed: what should the forest be?

The questions of 'constitution' (what is) and 'axiology' or 'deontology' (what should be) are related but disparate at first glance. This is part of the naturalistic fallacy expanded by Kant, Hume, and Moore – you can't get an ought from an is, or what 'is' isn't necessarily what should be. However, some critical theorists are exploring that the two can be more intertwined than would appear. The interplay between ontology and ethics is especially relevant in understanding the forest better and how it may evolve concomitantly with the surrounding community. This is interplay of the future with past and present, but it is also a paradigmatic re-envisioning of the lived experience and the relationships we choose to be in with our natural world.

In this final inquiry into the forest/people system, three separate yet related incidents hint at what we will call 'ruptures of normativity,' following Packer (2011). As the work of embedded research with interviews and field experiences evolved, unexpected discoveries prompted further examination into the ethics and understanding of the relationship with the forest. It is, at least partially, through reckoning with the experiences that we can develop a better understanding of the constitution of the forest which can allow us to be in better relationship with the forest and inform our inquiry of what the forest should be.

Literature review

What is a thing? This simple thought is a question that many thinkers have wrestled with and have developed varying results. Kant helped push Western thought along a multi-century examination of the distinction between subject and object that was elaborated and expanded upon with the phenomenologists. The subject/object distinction began to be challenged through Whitehead and what would come to be known as process ontology, where a thing is not a noun but rather a verb, a thing in the process of being. Heidegger added meaningfully to this inspection with his ideas of dasein and what makes an existence.

The critical realists (Archer, 2013) examine, among other things, the question of *being* socially, identifying the differences between a natural object that can be studied deductively and objectively and a social inquiry that must eventually come to term with affecting the point of study with the actual research. Nobody's opinion on gravity wave research will disturb the results if done properly, but the same cannot be said for social science where the point of study is in relationship with the results, as well as the actual data collection. The contribution of critical realism to a re-interpreted dasein elucidate that society is a moving target, difficult if not impossible to pin down perfectly, as the natural sciences aim.

This relationship between what is and what is perceived or socially co-constructed is a relationship of 'constitution.' Foucault identifies this constitution as "both objects and knowing subjects in practical relations of power" (Packer, 2011, p.13). The constitution of a point of inquiry then is the relationship between object and subject,

between the objectively defined components (i.e., the natural resource inventories, the demographics, the statistical analysis) and the perceptions, beliefs, values, etc. of the human element, and how they interact iteratively. Packer continues that "…people and objects as inextricably one with their forms of life, and to see reason and thinking as cultural, historical, and grounded in practical know-how" (2011, p.167).

The power component of constitution belies the naturalistic fallacy of gathering an 'ought' from an 'is.' In a way, this is central to any examination involving environmental issues and the proper use of natural resources. Progressing this question led to the examination of the domain of 'rights of nature' (RON) or 'nonhuman personhood' (NHP). This is the practical application of the philosophical challenge of subject/object duality by placing subject-hood into nonhuman objects such as animals, plants, or even rivers and mountains.

According to Kauffman (2018), when people speak of RON, they could be referencing one of four ideas: 1. a philosophy, 2. social norms and moral behavior, 3. law and legality, and 4. governance. The philosophy is what we understand to be as a worldview, such as an indigenous "cosmovision" of our existence (e.g. the Incan Pachamama concept) or modern Deep Ecology. The philosophy is also the one of the four that is most commonly intuited. The third idea, the law and legality, is the realm that the RON movement moves within. Kauffman (2018) maintains that creating RON laws is not the end goal however (2018). Stone agrees with him: "Yet, the Court may be at its best not in its work of handing down decrees, but at the very task that is called for: summoning up from the human spirit the kindest and most generous and worthy ideas

that abound there, giving them shape and reality and legitimacy. Witness the school desegregation cases which, more importantly than to integrate the schools (assuming they did), awakened us to moral imperatives which, when made visible, could not be denied. And so here, too, in the case of the environment, the Supreme Court may find itself in a position to award "rights" in a way that will contribute to a change in popular consciousness. It would be a modest move, to be sure, but one in furtherance of a large goal: the future of the planet as we know it" (2010, p.31). The whole point of the RON movement is to "center inalienable rights in natural objects and systems" (Kauffman, 2018); for this exploration, only the third idea, the legality, is considered. The constitution of a nonhuman subject then is the power relationship of a subject-subject nondualism for the purpose of regulatory protection.

Legally, the NHP rationale is a creative one that offers environmental protectors around the globe opportunities to value nature that have been hitherto limited in judicial systems. However, a significant philosophical problem is at the center of this subject-subject constitution: where do the delimiting characteristics of subject-hood begin and end? It is one thing to argue for the legal "standing" of a tree as an entity that is alive and desiring its own fulfillment or a sacred mountain that exists in full biotic and abiotic relationship of ecosystem services or ecological functioning. It is a completely different thing to understand the subject-hood of a concept like bioaccumulation, a process like evapotranspiration, or an invisible theory like ecology or evolution, let alone consciousness or nuclear waste. If a tree or mountain should have standing as subjects, should a Styrofoam food container or a depleted uranium core?

These hypotheticals are easy to offhandedly dismiss but more challenging to explain why. An anthropocentric justification is usually at the heart of such dismissal, but this logic begins to fall apart when questions of constitution of what actually is a human come into play. Morton (2017) points out that if a certain amount of our DNA is made of Homo neanderthalensis or that our gut biome is in symbiotic relationship with other creatures, how much of us is actually just us? On the other end, being organic entities, we need breathable atmosphere, drinkable water, and digestion of other organisms to exist: at what point do we separate the water molecule from the forest that curates its travel into our being? Furthermore, how do we identify subject-hood, let alone legal standing, to the virus DNA, gut microbes, the stratosphere, or the El Nino Effect?

OOO

Instead, an alternative domain of thought reverses the subject-subject rationale and posits object-object relations for an accuracy of constitution instead. The thinkers developing this idea state that making this small transition bypasses all of the above-listed problems: instead of declaring subject-hood for this object but not that object or wrestling with ideas of where a subject begins and ends, it is much easier and logically consistent to just say that subjects (e.g., humans) are simply a small subset of all objects. Object-Oriented Ontology, or called triple-O (OOO) by its practitioners, is a philosophy that aims to simplify and explain so many of the problems that we have in our human-nature relationship. We are one object among many but still objects.

Started in the late 90s, OOO was created by Graham Harman. Applied well to art criticism, Timothy Morton has utilized OOO to understand environmental thinking directly in his orthodoxy-challenging books: The Ecological Thought (2010), Hyperobjects (2013), Dark Ecology (2016), and Being Ecological (2018). His other texts, Realist Magic (2013) and Humankind (2017), address environmental issues but their focus is the intricacies of OOO and other concerns in the humanities. Hyperobjects (2013), in particular, pushes the bounds of how we are to think through novel objects in the life of the planet, such as Styrofoam, nuclear waste, television signals, plastic pollution, etc.

If all subjects are objects, then does that mean that all objects have subjecthood about them – do they have consciousness? Some OOO thinkers say they do (Harman, 2018), but regardless, all objects have their own experience over their existence. Also called a "speculative ontology," OOO speculates that objects of all sorts have their own "category of experience" that is their own psyche or substitute for a consciousness" (Cole, 2015). Whether objects have their own consciousness or not, they have their own experience in relationship with the other objects of the world that we can 'speculate' is their own meaningful reaction and interaction to life or the passing of time that we call existence.

OOO is a malleable philosophy that encompasses much of, if not all of, the physical world well. It approaches metaphysics but only as a dialectic materialism taken to an extreme: everything is an object. Because of this (literal) universality, it will be economical to focus on just the aspects of OOO that can directly help us understand the

constitution of the forest system, the relationship with other objects, its history and present, and the repercussions for the future.

OOO advocates for a 'flat ontology' that refuses to privilege anything inherently. It recognizes that some events and some objects have more impact than others but as a starting point it does not assume this. This levelling of the playing field of flat ontology is a philosophy that decenters all subjects to objects. Accordingly, OOO rejects anthropocentrism as a starting point as Kant does (Harman, 2018). This flat ontology is flat because it chooses to start an analysis from the object itself.

All things are objects

Through an OOO lens, all things are objects. Harman (2011) makes the distinction of real objects and sensual objects, but also clarifies that objects can also have real and sensual qualities. This is an unfamiliar and disorienting concept that sees human, trees, rivers and rocks but also Harry Potter and neoliberal capitalism as objects. While everything is an object and sensual objects like ideas have their own impact, Morton says that "if you can destroy it is real" (Morton, 2013) object as Harman makes the distinction in his typology. Harman says that "When determining the birthpoint of an object, the operative principle should in fact be literalism, which – as always with literal questions – entails that this point in time ought to be knowable. This makes quite a contrast with the later symbioses in the life of an object, which are non-literal in character and often more interesting and consequential than its birth…. Many objects are born but few are chosen…But a higher standard than literalism is needed for an object to remain in existence. After all, we know it is quite possible for an object to live on in name only

after the substance of the thing is dead, though it is much more difficult for something to be born in name only, since it is born as soon as its conditions of birth have literally been met" (2018, p.116). Fictional or physical objects are all still objects.

But an object must be bounded. To work with an object, Harman says that "the first task when analysing any particular object is to establish its limits in time and space" (Harman, 2018, p. 115). There are several characteristics to bounding an object, one of the primary is that the object is the object itself, it is neither more or less than what it is. Harman calls the tendency to see an object for something different than it is an act of undermining or overmining, by this, he means that an object is "more than its pieces and less than its effects" (2018). A forest is an object and there are trees that are objects within that forest object. But the forest is also not carbon sequestration, this is one of its qualities or effects. Relatedly, the forest is also not the forest/people system, which in this interpretation is its own object. Where this matters, where this comes into conflict is confusing the forest object with a forest-as-timber object as will be explored in the data analysis and results.

Objects are also perpetually withdrawing, they can never be fully 'undermined' or taken apart to understand them. This is similar to the Sorites Paradox, where the idea of an object is never graspable through a dissection of the parts – all you understand then are the parts. As Bogost defines objects through OOO: "Ontology is the philosophical study of existence. Object-oriented ontology ("OOO" for short) puts things at the center of this study. Its proponents contend that nothing has special status, but that everything exists equally–plumbers, cotton, bonobos, DVD players, and sandstone, for example. In

contemporary thought, things are usually taken either as the aggregation of ever smaller bits (scientific naturalism) or as constructions of human behavior and society (social relativism). OOO steers a path between the two, drawing attention to things at all scales (from atoms to alpacas, bits to blinis), and pondering their nature and relations with one another as much with ourselves" (Bogost, 2009).

The relationship with other objects

Harman summons Ortega y Gasset when he describes objects and their relationships to other objects: "I am myself and my circumstances. In saying so, he tried to oppose the idealism of modern European philosophy, which treats the thinking mind as an independent substance separate or even alienated from the world, by focusing on the interplay between self and world. Yet by countering idealism with the claim that mind and world are always mutually attached, Ortega loses all ability to account for the autonomy of things. He thereby fails to reap the rewards of a flat ontology able to treat humans and non-humans as standing initially on the same footing; in this way, he accidentally concedes the strange modern assumption that our rather minor human species deserves to occupy a full fifty per cent of ontology." (2018, p. 66).

The relationship between objects underlies all ethics and Harman states that Kant made a critical mistake in his otherwise revolutionary ethical pronouncement of a categorical imperative by separating humans from non-humans: "What Ortega notices, without stating it quite so plainly, is that we can broaden Kant's ethical insight in a way that takes it far beyond the realm of ethics. First, Kant forbids using *someone* only as a

means to an end at the same time that he obviously sees nothing wrong with using *non-human objects* only as a means to an end" (2018, p. 67, italics in the original).

Harman follows Kant's 'phenomena' (the things we're able to encounter directly) and 'noumena' (those that we are not able to directly encounter, like space and time as concepts) in describing the ways objects relate one other. Describing causality as aesthetic, and objects that interact with other objects through their "sensual" effects upon each other, Harman identifies the Quadruple Object that have two kinds of objects and two kinds of qualities (Figure 10). The real objects are objects you can "touch" like rocks and trees and sensual objects are concepts like capitalism and comic book characters. Their qualities are also distinguished through sensual and real effects, as in hearing wedding vows or experiencing a car crash. My favorite depiction of a sensual quality of a real object is Morton's description of a fossil: "The print of a dinosaur's foot in the mud is seen as a foot shaped hole? in a rock by humans sixty-five million years later. There is some sensuous connection, then, between the dinosaur, the rock and the human, despite their vastly differing timescales" (2013, p.71).

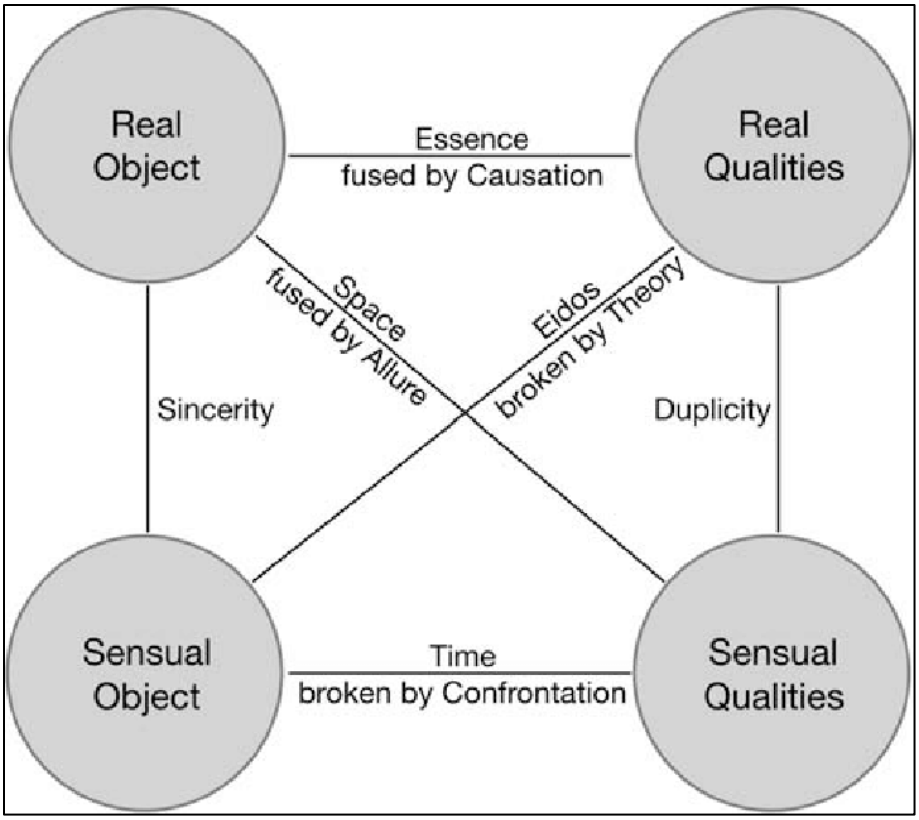


Figure 10. The quadruple object, adapted from Harman (2011)

The OOO thinkers use the quadruple object concept to analyze everything from the Civil War (Harman, 2018) to Bjork's music (Morton, 2016) and everything in between and beyond. It is a way of examining a constitution of an object but their very important ethical relationships with other objects. Morton specifically uses this idea of an object in his ecocritical approaches to our environmental problems. In Humankind (2018) and Being Ecological (2018), global warming and the planetary extinction of biodiversity are addressed as object and the aesthetic relationship humans have with them in the Anthropocene is critically reviewed. As he says in Realist Magic (2013), "what I do is me" and it is the re-reading of action as contributing to the constitution of any object that we should read the "I" and "me" in that statement: what global warming does is global

warming. Morton continues in Realist Magic: "objects are vacuum sealed, they never touch each other ontologically, only aesthetically" and "there is no interaction directly between objects, human or not" (p.26).

All objects experience each other aesthetically but new objects are also created as well as destroyed. This aesthetic relationship between objects has fascinating consequences: it contributes toward birth or death, which directly relate to ethical imperatives of transformation. Harman calls this aesthetic relationship a "symbiosis" (2018) but the evolution of a symbiotic relationship takes similar but different paths in Morton and Harman. Harman calls the birth of an object a 'ripening' from a symbiosis of two objects and the death, a 'decadence' (2018), while Morton calls the birth the 'appearance' and death the 'essence' (2013). Personally, I appreciate Morton's terminology because when we think of the 'essence' of someone or something, we intuitively think that there is a spirit within them which all actions emit; but it is through his re-interpretation that we see that an object's essence perpetually "in front of" it, the "place" of fulfillment and actualization it is heading toward. When looked at with Harman's decadence though, it even more fully conceptualizes an essence: existing as its decadent and rich self, be they resources or experiences. Our challenge then, in an OOO perspective, is to not privilege humans as the only objects that can have this richness of essence.

Ironically, the panarchy explanation of how a system evolves (Gunderson, 2001) and the OOO identification of the birth and death of an object are very similar. It does not seem that this connection has been made before. The only connections I have found

between panarchy and OOO are between an ecocritical reading of Byron's poetry (Johns-Putra, 2019) and a leadership article (Roy and Trudel, 2011). In a chapter titled "Panarchy and the Cross-Cultural Dynamics of Place in Nineteenth-Century America," Kucich (2018) uses both OOO and panarchy to cross the human-nature divide but the recognition of how each identify an object is not made clear. How Morton and Harman describe a 'trajectory' is exactly how panarchy identifies the reorganization-growth transition from the back to the front loop, and the conservation-release transition from the front to the back loop (Gunderson, 2001). Other than being a coincidence helpful for us to understand evolution and exploitation, the fact that these explanations are so similar could offer cross-disciplinary explanatory benefits: panarchy could help OOO thinkers explain how objects evolve and die, while OOO can help panarchy thinkers consider the aesthetic relationships with other objects in panarchy. For our purposes here, it is enough to recognize that the forest/system object is in a panarchy transformation in relationship with many other objects: the university, the various ecosystem services, etc.

In fact, Harman speaks directly to transformation: "As already mentioned, OOO focuses instead on several stages in the development of an object: stages triggered for the most part not by internal developments, but by symbiotic transformation… The most obvious [weak ties that lay the groundwork for symbiosis] is to look for transformative and irreversible bonds rather than simply conspicuous ones, though it is true that conspicuous events are often symbiotic" (2018, p. 119). He elaborates further: "OOO social theory holds that an object is mature as soon as it has no room for further symbiosis. The previous indeterminacies as to its ultimate fate have now been resolved

by committing to irreversible bonds with other objects, and such irreversibility is precisely what symbiosis means. All that remain is for the object to capitalize on what it has become by feeding on its environment; this is the ripening phase of the object. By contrast, the phase of decadence begins when an object's symbioses become overly literal, so that its various attachments become counterproductive to its own survival in a shifting environment. ...The birth of an object will generally coincide with some literal event that can be registered somewhere in time and space…The death of an object can sometimes precede its literal end by a good while, since it is often the case that a thing lives on in name only. But any time a symbiosis occurs…we will find a delay between the genuine phase change and its echo in some noisy external event" (2018, p. 120).

Morton uses this identification of transformation to understand the challenges inherent in deterministic causality in environmental systems. Calling it "clunk causality" he shows how we're so intuitively primed to deterministic "this happens and then this" that we forget how much of an illusion actual aesthetic causality is: "Tobacco companies and global warming deniers rely on a common resistance to the nothingness inherent in the realization that there are cracks in the real. There is no "proven link" between smoking and cancer - *but that's evidently not the point*. Likewise, global warming denial takes a leaf out of the determinist notebook. Since there is no obvious link between the rain falling on my head and global warming, it must be untrue. *Or my theory of causality is out of whack*. Large complex systems require causality theories that are non-deterministic just like very small Quantum scale ones. Clunking is an illusion that seems

to happen to medium-sized objects such as billiard balls, but only when we isolate the clunk amidst a welter of other phenomena" (2013, p.70, italics in the original).

This is where the constitution of objects, their trajectories, the relationship between objects, and the ethics of all of this intertwine. How are we to understand and then differentiate the "rain falling on our head" from the global warming object, let alone make ethical decisions about these relationships? This is one of the challenges of OOO and this forest system as well. How do we understand and then differentiate conflict histories of the past with management decisions for the future in a system-object that contains both nature-objects and human-objects?

Treating humans as objects and all objects as worthwhile of a flat ontology with which to place value, is an acknowledgment that all objects have needs, impacts upon other objects, and interdependency through relationships. For reasons of scarcity and justifications of survival, the placement of how we want nature to be (its appearance) is the positioning of natural resource exploitation upon what nature is perpetually developing as (its essence). This is a cognitive bias that delimits the possibility of discovery, or the actualization of the interdependent objects in symbiosis. Opening up the thought process this way liberates what Bourdieu (1981) calls an "ontological complicity" that forces an 'appearance' upon what we believe to be an 'essence.' He says that the "relationship to the social world is not the mechanical causality that is often assumed between a "milieu" and a consciousness, but rather a sort of ontological complicity. When the same history inhabits both habitus and habitat, both dispositions and position, the king and his court, the employer and his form, the bishop and his see,

history in a sense communicates with itself, is reflected in its own image" (Bourdieu, 1981, p. 306). In a sense, ontological complicity restricts flourishing of the object by demarcating the object within the boundaries placed upon it. It forces a desire for an appearance upon objects, wanting them to be the way we want them or stay the way we first perceived them, even if that perception wasn't accurate. Indeed, OOO tells us that objects are perpetually withdrawing and never fully knowable. So, our perceptions inevitably are always simulacra of what they actually are (Baudrillard, 1994), let alone what they will be. OOO tells us that often things are the way they are because we perceived them that way and subsequently constrained their capacity by clinging to our perceptions.

In many ways, this is the criticism of colonial science in general. Any thought process that exhibits cartesian dualism as the stepping-off point rather than as a rare and special quality of an object, is already restricting itself. Cartesian dualist thought is the exception rather than the rule, according to OOO, but if it is applied to all *a priori* perceptions of constitution, it has social ramifications. This is the argument against privileging Hegelian thought (Alpert, 2020) as it acts as a justification of slavery or conservation as has been practiced until recently. What is called 'fortress conservation' is the separation of humans from nature for the sake of saving nature (Betoko and Carvalho, 2020) and has dictated much of the conservation policy for the last hundred years.

Broadly conceived, fortress conservation is similar to ecofeminist critique expanded to land management. Even 'ecology' becomes a critical concept: "The issues with which ecology deals are imperishable in the sense that they cannot be ignored

without bringing into question the survival of man and the survival of the planet itself" (Bookchin, p.21, 2004). Earth First! sees this as "there is no system but the ecosystem" (Tsolkas, 2015). In considering axiomatic truths and consequent rights for humans and nature, appropriately placing the human and nature in a holistic system is necessary and 'ecology' is a great guide. Ecology is the study of home; coined by Haekel in 1866 (Marris, 2013), the concept of our home is all-encompassing and frames discussions of how to value 'beings' in the home. With just a word, it also implicitly asks how nurturing and secure is our home?

"Home" engenders thoughts of safety and comfort, but ecofeminists remind us that the "home" is also the place of most violence for at least half of our humans, as well as a demarcation of what is "not home" (Kheel, 2007). They also remind us that much of current conservation strategy involves controls over fertility and a focus on violence rather than care, connections rather than community, and what we perceive to be rational thought rather than spontaneity, inspiration, and play (Kheel, 2007).

Words are powerful and they create our world. Concepts of 'nature,' 'wild' and 'wilderness,' 'rights,' and even 'persons' are as loaded and slippery as 'home.' Discovering the implications of these words can help us engage in a dialogue that explores 'ecology' inclusive of rights, community, and systems. These discoveries can be liberating and emancipatory when their ramifications are followed, and we can start to celebrate human/non-human relationships for the agential mediation (Archer, 1999) they can provide. We can discover how to become more human by expanding our capacity for humanity with the uniquely altruistic and paradoxically selfish acts of conservation. By

questioning security, welfare, and identity with cutting-edge ideas and science-based theories, we can help ourselves by doing the most genetically selfless thing of all: helping non-human persons.

The reworking of colonial science through postmodern and critical theories is an ethical exercise certainly, but it is inherently a constitutive one. While Packer (2011) does not explicitly address OOO in his texts, he alludes to the trajectory of thought as furthered by Western philosophers and eventually addresses much of the same issues:

> *"A moral paradigm…is composed neither of subjective beliefs nor of objective objects. It is a shared way of living in the world, material practices in which we live out and transform our biological heritage and in which both objects and subjects are constituted…Concrete and specific studies of constitution are needed because we have gotten things wrong, as is clear from the large-scale damage to the planet on which we live and depend, international conflict, and economic instability…We need to change who we are and how we live, and we are the only ones who can make that changes. Research is necessary to help us understand what we have done, how we have done it, and how we might change what we have done" (Packer, 2011, p. 384).*

Combining constitution and ethics, or what is and what should be, is a combined process. While the question of 'developing an ought from an is' is not causal or axiomatic, there is an important relationship between the two. This nexus importantly informs transformation as well. How can you facilitate the flourishing of a thing, an

object, without understanding what it is and what ethically is appropriate for that object? The three cannot be separated. Again, Packer guides us in understanding this connection:

> *"The kind of science we have been building toward in this book has an ethical dimension. It is critical, emancipatory, searching for enlightenment through its focus on constitution. Foucault's approach to critical inquiry was not to take sides in a specific domain – advocating different treatment of criminals, for example. His interest was not in defining radical aims, or proposing political strategies, but in exploring the constitution of various domains. By revealing the contingency and fragility of knowledge, his work made visible the possibility of transformation. The very notion of constitution has a liberatory potential, not only because it has political relevance…but also because it encourages us to understand how we have become who we are. When we see the fault lines in the way we live, when we map the contingent pathways that we took and those we didn't, and when we recognize how we came to be where we are now, we can see how it could have been otherwise and how it could still be otherwise…" (Packer, 2011, p. 394)*

The liberatory potential of understanding how we have become who we are is the acknowledgment and reconciliation of a perpetually withdrawing past. It is an impossible goal. But just as our essence is impossibly and perpetually ahead of us, this is a task to actively embrace rather than passively react to.

Methods

The research methods employed to answer the ethical questions of 'what is the constitution of the Forest/People system' are an extension of the abductive process utilized in chapter 3. They are data collection mixed with member checking and regular reference to other conflicting or affirming data. However, in this case, an additional technique of reference to critical inquiry and theory was also applied. In concert with an active process of critically questioning the data within this research setting, I as the research instrument was challenged and also attempted to challenge the 'naturalness' of the lived experience I was exposed to and the social acceptance of these grand meta-narratives of the progression of agriculture, forestry, and timeline of the area's development. This involved negotiating the data collected with alternate explanations from theorists outside the system as well as self-reflective and uncomfortable questioning of the accepted norms. Lather (1996) calls this process "troubling the clarity" and Packer (2017) summons Wacquant (2011) calling the results of this process "attending to the ruptures of normativity."

The "clarity" here is the narrative of forestry-for-timber as a natural process, agriculture as conducted, and the not-quite-ignored but rather a passive repression of the social knowledge of the conflict histories of the system. The "ruptures of normativity" that occurred that became increasingly difficult to not attend to were the instances where the cracks in the accepted social narratives appeared. I experienced three distinct poignant instances during the research where the emotional shock of the occurrence prompted a separate inquiry. There was no further goal than to try to explain what I was

experiencing to myself, let alone anyone else, however, the abductive data process unintentionally proved to be an emancipatory inquiry examining paradoxes, conflicting data, injustices, and exploitative paradigms.

Data collection

These three incidents occurred at different times through the research, were influenced by extrinsic as well as globally-relevant factors, and involved different data collection methods. The first of these instances occurred early in my data collection and involved following up upon information from an informal interview that an unmarked cemetery existed on the CU property. Not much was known about the cemetery, little activity and minimal research had been documented on the area, and it also existed behind CU's poultry research area. What resulted was emotionally confusing and was the first challenge to the shared narrative that "the Forest saved the Upstate" and that this place "is seen as sacred" as shared by several of the interviewees. I carried this experience with me as a niggling incident that I couldn't fully explain or come to terms with throughout rest of the data collection, especially as further emotionally turbulent instances occurred. This incident also motivated a separate inquiry of critical theorists and coursework that included Fanon (1952), Rabaka (2015), and WEB DuBois through Morris (2017). Additionally, social justice texts about the US South were published after the data collection process that proved explanatory, and these include Rhondda Thomas's Call My Name, Clemson (2020) and Coleman Flowers's Waste (2020).

The second incident occurred during an interview with one of the social actors involved in timber harvest. The interview was 45 minutes complete and up to that point

similar to other conversations about the Forest. Casually, the interviewee shared data with Dr. Elizabeth Baldwin and myself that was evocative and shocking. It unsettled us and required further inquiry for explanation in the interview. The dialogue proved exceedingly telling, showcasing nuances of forestry perceived as timber-harvest versus forestry as community development or community inclusion. This incident challenged my understanding of forestry and motivated theoretical and alternative explanations. This inquiry involved reading two prize-winning novels about the history of forestry that were published during the research and referencing critical theorists to explain justifications of natural resource exploitation.

The third incident was the culmination of several factors: completing two years of walking all of the 110+ miles of trails within the CEF, nearing the conclusion of not just the interviewing process but all of my data collection, the national social justice incidents of civil rights protests, and a Supreme Court ruling that directly impacted the Cherokee Nation. All of these combined with the previous two incidents, resulted in recognizing significant data gaps in my research: the opinions, perspectives, and history of the former denizens of the land, the Cherokee tribe. A two-month process of establishing connections with members of the Cherokee Nation resulted, and an interview with one of their members took place in September 2020. In addition to the field experiences, boundaries-out examinations, and expanded interviews of social actors, I also consulted the work of critical theorists to make sense of the challenges involved in reconciling conflict histories, especially of exploited indigenous people.

Results

In 1491, there was a forest that probably looked more like a wildcrafted Oak and Pine savanna, likely very heavily shaped by humans, who at this time had already been involved in extirpating most of the continent's large mammals. In 1780 there was an increasing number of monoculture farms. By 1935 there was virtually no Forest and this place was known as Red Hills and Cotton. In 1948 there was enough of a Forest for the CU President at the time to bring on a forester and say that forestry-for-harvest would be the direction of the Forest, thus making a timber Forest. With that one decision, the ontology of the Forest was created, and it has more or less existed as such since then. It didn't have to be that way and doesn't have to be that way, but there are reasons why it has been that way. The important part is to recognize that what we might perceive as normal or natural – the Forest that exists around us and that that Forest is for harvest – is a social construction. But just because something exists as a social construction doesn't mean that it is arbitrary or that it is right or wrong. Or, in a reformulation of Kant: an 'is' doesn't necessarily make an 'ought.'

What is our 'is' now and how does that help us understand our 'ought'? Through all of the interviews, surveys, most of the artifact discovery and analysis, field experiences, and comparative forest analysis, a robust social construction of a mutually agreed upon understanding of this Forest developed. As we've been able to demonstrate, this social construction captured purposes of the Forest that were heretofore excluded from the forest management dialogue. Indeed, it has been unknown how to integrate and include these purposes into management analysis. Utilizing the Payment for Ecosystem

Services (PES) we were able to understand the intrinsic or unconditional values of the Forest but also how to integrate the utility of these values and possibly monetize them as assets. Further, the explanatory Doughnut Economics (DE) and panarchy models show how to include these comprehensively for future management decisions.

As the research progressed however, several in vivo experiences and discoveries necessitated further inquiry that originally seemed tangential to the original Purpose question but important enough to understand as they kept appearing in unusual ways and unexpected places. In the vernacular of the area, I will call these experiences and discoveries haints. In To Kill a Mockingbird (Lee, 1960), Scout is asked if she's scared of haints as she looks at the Radley house. A ghost that haunts us, a haint is that thing that gives us an eerie feeling when we experience it but can't quite understand it or communicate our unnerving feeling. Similarly, we must ask ourselves if we're afraid of the haints here or if we're able to adequately address them.

The first haint that directed my thoughts that something different than my original question needed answering was when I experienced an unmarked cemetery believed to hold the remains of enslaved people. This cemetery exists behind what is now a poultry research center and near what is called the Treaty Oak – an oak that no longer exists but was the site of a dismissed treaty between the native Cherokee and the original colonists of European descent. This started me actively looking at what else was unacknowledged or underacknowledged. The second haint occurred as I started the formal interviews. One of the first interviews conducted had an offhand comment about killing newborn puppies said almost dismissively in response to a question about how to care about the trees in a

forest that is also used as timber. Shocked, we explored that comment further and it became a hint that different people might literally see the Forest differently. In several other interviews, we saw traces of this same difference in ontology. The last haint is related to both of these and could be an extension of them if not for the qualitatively different experience. In early summer 2020, I was trying to understand how to understand the Cherokee that used to live here and whose village and remains and history now exist under the artificially created Lake Hartwell. I visited the only acknowledgement of their existence which is Fort Rutledge, a recreation of a Fort that was used in the colonial conflicts resulting in the Cherokee genocide. Then in July 2020, the US Supreme Court ruled in McGirt v Oklahoma (Barnwell, 2020) that half of Oklahoma belongs to the native people who were relocated there and I decided that something larger in the National postcolonial understanding is occurring. I decided to reach out to the Cherokee Nation and ask their perspective about decisions made on land they used to inhabit.

These three haints led to an entire discussion of what this Forest actually is. I'm using the spooky paranormal term to invoke the confusing "hair on the back of the neck raising" feeling when these were experienced but these are far from some cartoon concept of a ghost. Just like real magic is just sleight of hand and nothing actually wizardry, real ghosts exist in the unexorcised experience that we all speak around rather than at. Similarly, to speak to what is not being said is the experience of being a researcher of social science - using both professional discernment and of being a human attuned to exhibit curiosity and compassion - that something deeper resides in that experience. Within the interviews, few people (4) brought up the histories of the native

peoples, the captured Africans, the destitute, and the legacy of convict child labor building the Clemson campus. Several people spoke to how these issues relate to present day management if I brought them up in the interview but no one specifically said that this Forest is a place for acknowledging these conflict histories. To be clear, I did not actively address these issues in each interview and questions addressing conflict histories were not part of my original concern. What I'm not saying is that these histories aren't known or aren't felt by the people here, they probably are to a wide range of degree. However, what I am saying is that few people brought up the histories at all and no one said that an acknowledgment of the histories is a main purpose of the Forest. There were only hints and echoes of how these histories create the constitution of the Forest and it required a separate thread of inquiry to examine them.

As increasingly more evidence of these stories and the impact of their legacy onto present day experiences came to light, it further reified the belief that something else was contributing to the constitution. Understanding this required reaching out to a different set of social actors than expected and also examining different literature and artifacts while also paying more attention to different dialogues within the system and outside it. These three different threads are explored below but they also intertwine both chronologically and ontologically.

The First Haint: Mutant Beginnings and Forgotten Cemeteries; or, the ghosts of the past

In July of 2019, I had received information that there was an unmarked cemetery near what is called the Hopewell House, the house of a plantation just south of CU main campus, that is believed to be the cemetery of the enslaved people of the plantation. This cemetery's existence is known by CU historians but still little is known about the cemetery itself. Because it is situated behind what is now the Morgan Poultry Center, permission is required to access the site. Because it is a research site, a decontamination protocol is required that includes wearing blue surgical booties over your shoes while tromping through the mud. I mention this because after I put the booties on and was guided to the area, it was a profoundly surreal experience to be walking up to a clearing in a forested area with only a nylon rope demarcating the approximately 100ft by 100ft plot within clear earshot of two industrial buildings full of screaming chickens. Entering the plot, there are approximately 60 indentations in the ground with the occasional rock as a marker and two headstones total. Each indentation also has a numbered marker that is probably from a historical project at some point, but I could never find what that project was.

As I was walking around and taking notes and photos, I was also trying to understand the experience of standing on this ground wearing decontamination booties for the sake of the chickens yelling incessantly nearby, not the people I was standing above. To make it weirder, one of the poultry researchers was so excited about discovering a rare mutant three-legged chicken that they came over to tell me about it inviting me to go see it. When I politely refused offering a tight schedule as an excuse, I

was shown photos of the mutant chicken. It was very disturbing regardless and the juxtaposition of the two made it even more so. It was a clash of something akin to a sacred and profane dichotomy, but also a dualistic experience of banality and morbidity, a disregard of the evocative but forgotten plot and an excitement and celebration of a pitiful unfortunate deformity. Like an unnerving Francis Bacon painting, a Damien Hirst exhibit, or the right panel of Bosch's Garden of Earthly Delights, it was a dissonance, an asymmetry of emotional experience: the wonder and sacredness of the forgotten plot was shifted toward the mutant anomaly resultant of an exploitative agriculture. I took some more photos of the site and as I was leaving, a Red Tail Hawk perched in the hardwood above me and started screaming, seemingly in a call and response with the chickens (figures 11 and 12).

Figure 11. Cemetery behind poultry center

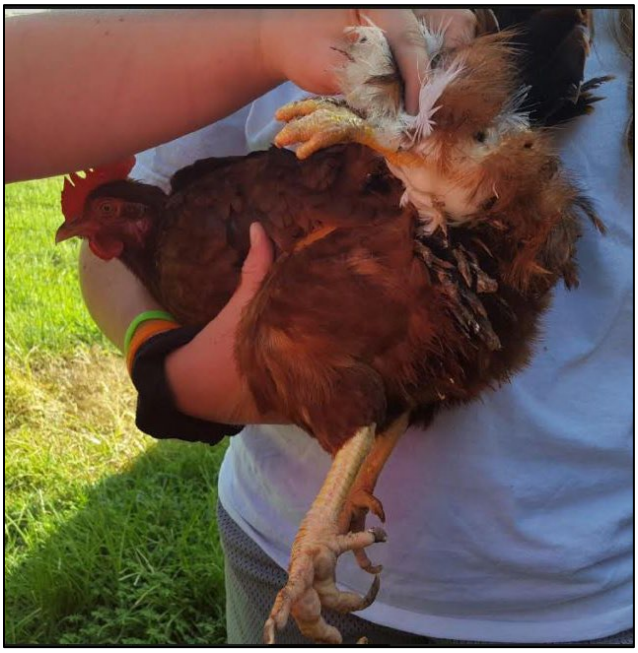


Figure 12. Three-legged chicken

This was an extremely unpleasant and odd experience throughout, but it opened me up to the very real lived history that these lands were not just red hills and cotton fields turned to forests, but places of slavery agriculture, of unacknowledged death and

mutant agriculture coinciding together. Over the next few months, I brought this story to several researchers within CU to try and understand it and was made aware of Dr. Rhondda Thomas's Call My Name project. Through the Call My Name project, I came to learn about Dr. Thomas's work in unearthing the "generations" of marginalized and exploited people involved with building the Clemson area and school. Through her work, I was acutely made aware of the slave quarters on campus, the role of Calhoun, the role of Clemson and Tillman, the "burial ground for enslaved persons and convict laborers" (Thomas, 2020, p.103) behind Woodland Cemetery, and the convict child labor used to build the CU buildings.

Trying to understand and contextualize these histories with the very pragmatic task of contributing to land management decisions has been a challenging exercise. Part of me has questioned whether these histories are relevant at all to land management but then the discovery of new data, artifacts, and new experiences reinforce how all-encompassing and directly contributive to land management they truly are. In early Spring 2020, I had one of those illuminating chance experiences that I've only heard educators explain. Asked to contribute as a guest lecturer in an interpretation class about the Forest, I was sharing what I know of the conflict histories to a group of undergraduate students when one of them asked me why we should care about these histories. My off-the-cuff response was that 'we get to' care about these problems here and I went on to elaborate that there are so many big, disparate, diffuse, nonlocal, multivariate, wicked problems around the world (this was right after the devastating Australian wildfires) that make us feel so helpless that when we 'get to' actually address one of them, it gives us

rare access and agency. This idea of 'we get to' is explored more in the chapter 5 but sharing this idea with the students was new enough and odd enough for me to ask myself, do I actually believe this? I think I do and more relevant to this project I think it shifted the approach toward understanding this first haint better.

While these new conceptualizations were taking shape, spring, summer, and autumn of 2020 shepherded into being new social justice issues. First, COVID changed the landscape globally but also how this research progressed. Second, with this new knowledge of the relevance of conflict histories, the murders of Ahmaud Arbury and Breonna Taylor within half of a day's drive from Clemson made me question what connection exists between the current day experience of murdered black people and this Forest as one of the epicenters and ontogenesis of this violence. Third, the week after the George Floyd murder I was finishing my two-years-long field work of walking every marked trail in the Forest. I was re-recreating the Bartram Trail from 1775 and walking the entire length of the Forest, 11 miles one day and 11 miles another. This particular day was a serendipitous amalgamation of experiences. The George Floyd protests in Minneapolis were spilling over and re-awakening a general anxiety and frustration around the country. Black Lives Matter protests were occurring in many cities and even rural towns. As I was walking over the South portion of the Forest, I was very aware that I was walking over the origin of the Cherokee genocide, at least four plantations and their subsequent violence, and a long history of destitution, all before the trees I was looking at were even seedlings. Taking a break in the middle of this walk, I checked the email on my phone and in response to the Black Lives Matter protests, CU administration had

informed us students that they were renaming the Calhoun Honors College and voted on taking the renaming of Tillman Hall to SC Congress. Additionally, there would be a march and gathering in the shadow of Tillman Hall the following day with CU football players and coach, the CU President, and others speaking. As Dr. Thomas's work has shown, the fight for renaming the buildings, acknowledgment of these histories, and the protests were nothing new but they were expressing themselves in a new way, thus facilitating and creating a new understanding of what it means to be part of the CU system. Finally, in Autumn of 2020, as a modified return to campus occurred due to COVID, the CU administration was wrestling with the incorporation of the Woodland Cemetery mass-grave of enslaved people discoveries from Dr. Thomas and her students. All of this was swirling around my thoughts as I tried to understand what this Forest actually is, what makes this Forest and our understanding of it.

The Second Haint: The Exploitative Uncle; or, a ghost of one of our presents

Simultaneously with the first haint, another experience rattled my preconceived notions of this Forest and my assumptions of how it is perceived. The depth of the emotional connection was unclear to me. As I started interviewing folks involved with the Forest, it became increasingly clear that not only were strong emotional ties inherent with the Forest, these emotional experiences literally created different ways of 'seeing' or 'knowing' the Forest as a different entity. This is partially a difference in epistemology, but I think it directly relates to how people experience their ontology. The Greeks made the distinction between *doxa*, the knowledge that comes from experience and opinion, and *episteme*, the knowledge of what is truth. While at least two millennia of philosophy

have demonstrated important nuances and differences with these, there is a relationship between 'how we know things' helps to create 'what things are.' The hint of this confusing relationship appeared in the second haint when I started the formal interviews. Being made aware it, my antennae were up with subsequent interviews and I was listening for ontological differences, partially for the sake of trying to understand the interviewee's perspective of the Forest's ontology but also to understand what I just didn't know how to understand about that connection between doxa/episteme and ontology.

The first interview that this was apparent occurred unexpectedly. In discussing our normal questions about 'what the Forest is for,' I recognized that there was a disconnect between sentiments. The interviewee had stated that they love trees and that trees give them inspiration and they consider trees as their medicine. But they also said that they have no problem with cutting trees and actively pursue this as part of their professional life. That created a gap for me and I asked them to reconcile this difference. This dialogue is important enough to share in full below, but I want to speak to two issues first. This is a personal story that someone shared with me and while we went through the ethical certifications and approvals to interview people, have made all of our interviews both confidential and anonymous, and each interviewee was made aware of this and agreed up front to sharing their stories, including this anecdote in full feels exploitative. Further, my framing of it as a 'Exploitative Uncle' experience also feels judgmental and lacking respect for this person's life story. I acknowledge this and while I think I am within the ethical bounds of research, it still troubles me. However, I am still including it

and I am still framing it thusly for important reasons that I hope will become clear. Lastly, I have redacted as many identifying statements as possible while still trying to capture the narrative of the anecdote.

> *Me: Well, okay. Now this is a little bit off topic and [redacted], but this is more of just my own personal curiosity. Because I'm from Southern California, I think I saw my first tree when I moved here three years ago - all I've looked at is desert sand and beaches my whole life (laughing). But I'm curious about this, because you say this is your medicine, these are, you know, the trees are what bring you inspiration, but how do you reconcile that both professionally and personally with cutting trees?*
>
> *RD: I don't have any problem with it at all. And I think it's related to this. I'm going to go with another story. My uncle had rabbit dogs. Okay, he had raccoon dogs. He had cattle, some, a few. He was somewhat of a farmer and he actually was [redacted]… He had like 200 acres and they condemned, everything but three, but anyway, he was kind of a realist and he would, if he, if one of the dogs got pregnant and I mean, you know quality control wasn't as good back then either. But when he would have a pregnancy that he didn't need, you know, I don't want to feed five more dogs, six more dogs, I don't know but when those things were born, and I was just a little kid then, and I'd be hanging out with him and you know going with him, my cousin and I were about a month apart, so we're almost inseparable back then, but we watched what he did and when those pups were born he'd say 'well time to do something.' He'd go out there and put them all in a bag. And at the time the river was running right around through there and that was his farm. And so he put those puppies in a bag, put a couple of bricks or rocks or whatever in it and take it to the river, throw it in. It was called population control. So you do what you got*

to do? Yeah, and you know Farmers probably still do things like that. You know, if they see a bad cow born right? It's gone.

Me: But it doesn't mean that he doesn't love his dog?

RD: Exactly. He loves the dog he's got. He just knows he can't keep more. So anyway, you do what you got to do and to me, I guess maybe it was just the education that I was exposed to at Clemson that, the tree is going to grow if you don't go out there and just beat it down and mow it down every year, the thing is going to grow on its own. It's going to be there and it's going to be there the next time. It might be a little different, the composition might be a little different, but you can also control that. And so when you cut a tree, you know, to me it's maybe, it's a reconciliation process that I've learned over the years, but when you cut a tree you're just making room for about six or seven to be planted. Then they're going to go through their life. You're going to have even more trees. Yeah for a while and then you're going to thin them, you're gonna keep those that are doing well and healthy. It's like throwing those pups out that you don't need. You take the thinner ones, the trees that you want to thin out, they're not doing so well, haven't shown that they can grow fast enough and you got these others going like this. So you take the ones out like that, you know. as forest management. So you do what you got to do and you know that the capacity is there in the land for it to come back.

Me: So would it be fair then to say that the medicine is not just seeing the trees and being with the trees, but knowing the process and knowing the healthy process is going to be coming forward?

RD: I think that's, that's, that's good. Yeah, I'd agree with that, that it, that the process, the process works. It's not a bad thing, right? It looks bad. But nature does some bad things too. Nature knocks down acres and acres with a tornado.

Me: Nature sometimes kills their own pups too.

RD: Absolutely. Nature grew them and nature destroys them some time on her own, the process happens, and I guess maybe that's kind of the way we were taught early by some of these professors in Forestry that are not around them, but that this is just the way it happens and if you watch it through time, if you don't do anything, this is what's going to happen. If you do do something this is what's going to happen. And that's part of the whole reason. This thing exists [this Forest exists] so that you can show different stages of that. And say, 'Let me show you a picture of what this looked like right after we cut it, What does it look like to you now? Oh, I don't think it's ever been that…'

This interview is of a forestry professional and I call it the Exploitative Uncle story because it is an evocative title that I think is the most helpful story to understand the forestry profession in an important way. Coincidentally, as I found later, Annie Proulx used very similar anecdotes throughout her epic novel, Barkskins (2016), about the history of forestry. I don't think it fully explains forestry as an industry or is a blanket statement that covers every forestry professional, but I do think there is an important kernel at the center of this story that holds true in seeing a forest-as-timber, that allows a forestry professional to see trees as both medicine and something to cull and doing 'what you got to do.' As in Proulx's novel, I also don't think the lesson here is that foresters are evil but rather that there is an important historicity, a dialectical materialism that has facilitated a sort of sensitive dependence on initial conditions that forestry professionals couldn't escape even if they wanted. There are very real historical reasons why forestry-as-timber exists. This leads me to the phrase Exploitative Uncle: there is a cognitive dissonance that occurs when you witness someone you care about partake in a violent act and to make the two diametrically opposed actions reconcile, our brains justify it. It is

unfair of me to psychologically assess this interviewee and I am attempting to not do that. I am attempting, however, to critically analyze forestry-as-timber in this way, using this anecdote as my vehicle, seeing it as Exploitative, even if it is truly 'necessary' as many forestry professionals would argue. Further, my point ontologically is that foresters literally see forestry-as-timber as 'good,' and they are acting on behalf of the forest and what is 'natural' and good for the forest.

This idea has been reinforced through several dialogues and hours of formal and informal interviews. It is increasingly becoming clear to me that foresters see a forest as an instrumental object. This is obvious in one glaring professional way (i.e., their professional responsibilities mandate they harvest trees appropriately) but I think it is also more ontologically nuanced than that. A non-forester preservationist, for example, would ontologically see a forest for its ability to flourish by not being "touched by the hands of man." But a forester ontologically sees a forest as flourishing best when it is managed: when thinning occurs, when prescribed burns are scheduled, when multiple use strategies are employed, etc. However, as I am learning, that instrumental ontological perspective does not necessarily prohibit the same sense of awe, wonder, or desire for optimal flourishing as might be expected. As one forestry professional interviewee said: "I love walking among the trees [that he will end up cutting], it's my medicine."

This philosophical difference has direct implications in discussions about management and funding because a forester doesn't just see a forest *for* forestry but a forest *as* forestry. This is difficult to imagine when seeing a clear-cut (figure 13) but easier to understand when walking through a selective cut. It has been my learning

experience through this research that a discussion with a forester that doesn't understand this mindset will be speaking at cross-purposes. It is important to note that this doesn't preclude conversations about preservation, recreation, or other non-harvest activities, rather that these activities need to fit into the holistic framework held by a forester that a forest *is* forestry and these other activities are categorized as something like Multiple Use.

Figure 13. A recent timber harvest

Becoming aware that the forest *as* forestry is its own ontology, I was more attuned to recognizing other ontologies in the interviews. Exploring these to the depth needed with the Exploitative Uncle might not be necessary here, but for the sake of acknowledging different diametrically opposed ontologies of the forests within even this system alone, I do want to recognize a couple more that stood out. First, there is the

innocuous but still important stuff: the folks that literally see this forest as an extension of their family and their community. Often, when we discussed the Forest with people, formally and informally, many of their responses were similar to how someone would describe their neighborhood or their community. As referenced in the Table of Ideas in chapter 3, many people wanted to share their ideas of the things that could be done with the Forest. In my personal experience as a conservation professional that built their career on working with different communities to protect and value habitats, I had never had the experience of so many people excitedly telling me about their ideas. I still don't fully know what this urge is, but it was odd enough in my own career to pay attention to it as a communication tool: what were they telling me by wanting to tell me their ideas? Upon reflection, it occurred to me that the only other time I had witnessed that was when friends and colleagues wanted to tell me about renovations to their home, with activities of their children, or about activities in their communities. I don't know if this is a fair comparison but something about this experience makes me interpret this activity of creating innovative ideas for the Forest as an ontology of home.

Speaking of safety, the last hint of a different ontology deals with the irony that this Forest has been a place where professors have felt safe allowing their students (graduate and otherwise) conduct their research without having to face the uncertainties that exist in forests nearby. One interviewee mentioned that the CEF was the "only forest in the area where they felt safe [sending their graduate students] because it didn't have the N-word carved into the trees." Another interviewee mentioned that the CEF felt like a backyard laboratory that they felt they used to love exclusively but now had to "be in a

polyamorous" relationship as the visitor use has increased. Similar to this backyard laboratory, several interviewees mentioned the importance of this Forest as a climate refugia. Instead of mentioning it as a purpose or as an ecosystem service, this Forest is framed in their understanding as other people might see an island; ontologically it is the "green dot on the map" of an increasing Charlanta Corridor. I had not intended to ask 'What is the Forest' but similar to the first haint, this difference in ontology became too distinct to ignore.

The Third Haint – No Self-Respecting Cherokee Is Without A Corn Patch – or the ghost of a potential future

This haint is similar to the other two as it deals both with a different ontology and also a deep dive into another social justice component. However, in a qualitatively different way it is quite distinct. Starting this project, I was aware that an indigenous community existed in the vicinity of this Forest but wasn't aware of much more than that. Looking back through my own audit trail, there are only two references to indigenous people in my notes prior to June 2020: the first is in the very beginning when I was considering looking at the Forest through a nonhuman personhood lens and the second reference was in the second year of research when I found the Treaty Oak was trying to contextualize the importance of history to present day management. The first reference didn't much go anywhere as nonhuman personhood does not require indigenous phenomenology. The second reference was more interesting. Through my field work of walking all of the marked trails within the Forest, I found a short loop that contained the Treaty Oak, a place on a peninsula that overlooks what is now Lake Hartwell but used to

be a large Cherokee village called E'Seneca Town. The actual oak no longer exists and, symbolically, the skeleton of a ghost of a tree is intuited by the decrepit wooden braces that used to hold up the original tree. Trying to understand this, I reached out to more researchers and was told that oftentimes research goes too far back and we lose track of what we're dealing with now. Because I could not figure out the problem then and because no pertinent other data was refuting this statement, I allowed it to dissipate.

In June 2020, however, I was made aware of another trail and a recreation location of an old stone Fort Rutledge (figures 14 and 15). Another short loop, this trail leads the visitor to Fort Rutledge and continues past a power station to the dike separating Lake Hartwell from the CU Agricultural Fields. It is difficult to assess for certain but it looks like the heart of the E'Seneca Town existed right at the dike. This experience motivated me to do more research into the Cherokee, but I still could not find much about their lived history here or really too much about them at all other than the Trail of Tears that is claimed to have begun in the mountains and not here.

Figure 14. Fort Rutledge kiosk

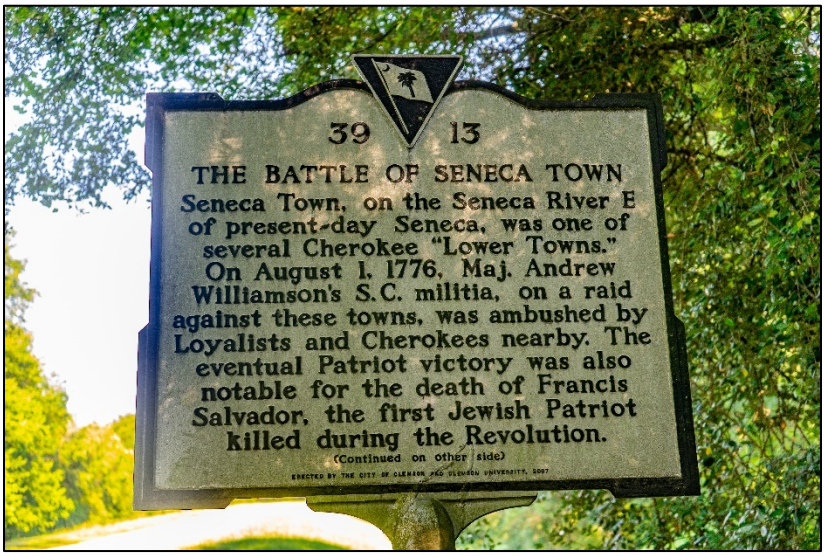


Figure 15. Battle of Seneca Town sign

Then in July 2020, the US Supreme Court made an unexpected landmark decision in McGirt v Oklahoma (Barnwell, 2020) that recognized a forgotten treaty made in the early 1900s between the US Government and the tribes that were forcibly relocated to subpar reservations in Oklahoma. This decision ended up returning half of Oklahoma to

these five tribal nations (cite). It was then that I realized that our society has not figured out how to deal with a past that we perceive to be ancient history but is really all too relevant to modern-day problems. My problem this entire time was that I couldn't figure out how to integrate these histories into modern-day management problems. It never occurred to me to actually ask the people who were affected by this history. So, I called them.

After two months of communications and a separate IRB with the Cherokee Nation, I was finally permitted to interview a Cherokee Nation Citizen and Representative and ask them specifically how they perceive how history can affect modern-day management of land that they no longer have control over. Before I discuss the experience of this dialogue, I want to point out a couple things. First, "Cherokee Nation Citizen and Representative" was a title that we had to agree to as the interviewee wanted to be seen as many things: a lifelong blood member of the people, a leader of the Nation, an educated and informed citizen, and someone able to speak to important issues. I offered several recommendations for titles and we agreed on this as an adequate referent. Second, in the very first communications with members of the Nation, it was made very clear that no matter whom I spoke with, no one person would represent the opinions of the Nation as a whole, that I was merely getting informed and experienced opinions from experienced Cherokee members. The implications of this for the results are that I am may not receive consensus but rather perspective. Third, as part of their IRB process, they have a stipulation that they will not officially allow social science research that interviews or otherwise studies members of the Nation that will provide results that

do not bring benefit to the Nation. They shared that they have a history of 500 years of people starting out with good intentions that result in unethical exploitation. While I completely understand and agree with this clause, this was an interesting stipulation for me because I could neither guarantee that my research results would benefit anyone, and I also did not want to bias my research unnecessarily. No matter how much I personally value the Cherokee Nation and would like to see reconciliation to their past and current injustices, my attempt at research is not to benefit the Cherokee but rather to provide for a better understanding of this Forest. I shared this both verbally and written through the permitting process and the reasoning was accepted.

The interview with the Cherokee Nation Citizen and Representative led to several new perspectives that had not been considered. Listed below are the important points and quotes from this interview:

- Cherokee Ontology – pre-Christian influence and now
  - "No self-respecting Cherokee is without a corn patch." And, "…if you can understand this, you can understand the relationship to nature."
  - The most important thing to a pre-Christian Cherokee was not to be disturbed in the afterlife, the respect of the remains
  - There is no word for plant or animal – everything that is not a Cherokee person was considered a "not perfect" Cherokee. Not imperfect, as in lesser or worse, just not whole.
  - "There are no proper nouns in the Cherokee language, just descriptive titles. So, a bear or a deer or human sibling is described by their characteristics. The closest equivalent to Western understanding is a "cousin" on a family tree."

    - Pre-Christian, when a Cherokee died, they were placed in their home and everything was burned, including the entire home, the person, and all of their possessions
    - "We only pay rent on the land we live on." And: "We don't actually own it."
    - "Prior to European colonization, America was one of the great civilizations around the world. It was a cultural civilization, not a technological one."
    - The land around the Cherokee was wildcrafted land. Outside their door was their pharmacy, their grocery store, their playground, everything. There was nothing manicured or boundaries in the sense we understand today. It was wildcrafted and cultivated, allowed to be messy and live beyond borders.
    - The favorite management tool is to do nothing
- Communications
    - Our entire conversation was seen simply as the start of a longer, larger dialogue.
    - "We would love a seat at the table"
    - "Cherokee are at heart, realists. We recognize that we're a conquered people and that we have no say in what goes on."
    - There is always a stated interest in communication with potential partners
    - The only caveat is that because of a long history of deception and exploitation, the Cherokee Nation have a tendency to just stop communicating at the first sign of being taken advantage or deceived
    - The only Federal legislation that gives them a seat at the table is National Historic Preservation Act
- Miscellaneous
    - CEF is on the eastern fringe of the conquest

The Cherokee Nation experience points to both a different ontology and a social justice issue. But it is messy. It is messy because they have important ties to this place,

they literally see their cultural heritage existing in these soils and under Lake Hartwell, they literally see the plants and animals and other life as not-perfect Cherokee, and they would value a meaningful dialogue. It is also messy because the role and maybe even responsibility of a land grant-school to discovery, understanding, and inquiry of both history and future relationships is at best yet undetermined nationally. Additionally, as this Cherokee Member even recognized, there is no overarching reason for them to be involved at all in current or future Forest management.

The most important takeaways from this research are that there is still a connection between the previous tenants of this land and the current Forest, however tenuous and indirect. Potential futures are also not disregarded - this isn't a broken relationship just an undiscovered and circuitous one. And a desire for any communication does exist.

An infinity of haints

It occurs to me that there may be a vast multitude of haints. This excursion is merely an introduction into the three I experienced directly. I wanted to add a fourth because the rupture is so near to my professional and personal interest: the species that either no longer exist here or those barely surviving. However, almost no interviewees or survey respondents mentioned threatened or extinct species and the artifacts were lacking as well. One report from the CU Land Asset committee has a good list of the species of special concern and throughout my field experiences, I sought them out. While I encountered a few, most eluded me (see figure 16 for some of the rare flowers). Regardless, I tried to ask myself how a forest that didn't exist one-hundred years ago

could be haunted by the species that used to live in the area – the endangered Red Wolf, Florida Panther, or any of the others? How do we tell the stories of the multitude of plant and animal species lost or threatened with extinction? What is the responsibility for a university forest to take on such a task? At the very least, the recognition of this haint should appeal to the OOO flat ontology by expanding our capacities for defining "people" in the Forest/People system. Do the rare flowers exist as objects in symbiosis with the Forest or as entities in the Forest/People system? I don't have good answers for these questions based on the data discovered in the research other than identifying a lack of detection of value in the social system, but it is my hope that reconciling with this haint can facilitate a co-discovery of these answers.

Figure 16. The rare Smooth Coneflower, Georgia Aster, and Oconee Bells

Discussion

Ruptures allow us to view that which runs deep, which may be hidden, but influences people and relationships impacting the Forest. The haints were powerful experiences for me. But as much as I was an embedded researcher living and studying within the system, I am still an outsider. The US South is not my home and it is only for these few years of this study that I have lived in the system. This position possibly gave me the perspective to identify these ruptures, but I also do not have my own legacy of living these ruptures daily or even generationally and am therefore limited in the possibility of my knowledge. The lived experience of those who call this place home or even their ancestral home is a different experience than mine and I would imagine that their emotional and evocative knowledge is that much more poignant. Attending to these ruptures by troubling the clarity can help in developing a clearer constitution of the forest/people object. There is an emancipatory project in that exercise, where the future of the system has the opportunity to be more just, abundant, and regenerative, only if that relationship is chosen, however.

If we attend to the ruptures or normativity to try and trouble the clarity of what the forest/people system knows to be their truth, what is the future of the system? This question alone allows for discoveries of 'how to exist' that humanity has yet to figure out. The haints identified here point to an important distinction of the word "discovery." There are discoveries of what was in the past and discoveries of what is yet to be. Often, we are more comfortable calling the yet-to-be 'inventions,' as in the technological sense. But one of the things that we get from thinking through OOO is that humanity itself is

also an invention, an object in itself, and one that didn't exist prior: it is an invention we're discovering as we create it with each of our daily individual and collective choices. It is a creation into the new, yet-to-be known future. In a way, this could be called a moral invention, an invention that expands our sense of humanity and helps us figure out how to live with conflict histories and critical re-interpretations of natural resource exploitation. The presence of ongoing contemporary social justice conflict and Supreme Court decisions is evidence that we have yet to figure these problems out holistically and together as a society. One of the moral inventions that could come out of reconciling with these haints is that we could start to figure out, as a system, how to best interact with marginalized communities for the sake of best being in relationship with the natural world. Yes, figuring out PES and sustainable development is necessary and possible, but it doesn't have to *a priori* exclude the ethical component and moral inventions required to encourage human expression. Indeed, it may prove a necessary step for emancipatory development of intersectional abundance.

Taking the OOO logic to heart, the forest/people system is an object seeking its own trajectory of thriving and flourishing. As decision-makers grapple with how to best monetize the asset by stewarding the natural resources, and as the community evolves in its use and understanding of the forest, the collected and holistic forest/people system can seek a more robust ethical understanding of the system as an OOO object. Aldo Leopold concludes his Sand County Almanac with the following statement regarding authoritative rules to developing a land ethic: "I have purposely presented the land ethic as a product of social evolution because nothing so important as an ethic is ever 'written.' Only the

most superficial student of history supposes that Moses 'wrote' the Decalogue; it evolved in the minds of a thinking community, and Moses wrote a tentative summary of it for a 'seminar.' I say tentative because evolution never stops. The evolution of a land ethic is an intellectual as well as emotional process" (Leopold, p.225). Like Leopold's maxim that a land ethic is something to perpetually devise "as a product of social evolution," the moral invention of humanity expressed in the forest/people system will be perpetually discovering itself anew. Addressing how to live with the haints can be an important step in this process.

The perpetual discovery of self-anew within the forest system is anticipated by Eduardo Kohn in his masterful ethnography of the Runa people of the Upper Amazon in How Forests Think: Toward an Anthropology beyond the Human (2013). Living with and studying the Runa and their relationship to the forest, Kohn examines the mind-bending and rational-thought-challenging "ways in which life (human and nonhuman) is connected to death, continuity to finitude, future to past, absence to presence, supernatural to natural, and ethereal generality to palpable singularity. All of these, ultimately, say something about the formative connection a self has to its many others" (p.195). As much as I am surprised by it and in some ways do not want it to be true, my experience of confronting the haints and trying to understand how the present is affected by the legacies of the past, the consequences of the Thomas Effect (whether what we believe is true or not, the results of that belief are real), and the re-ordering of the anticipation of the belief in the future, is similar to Kohn's reflection. Calling upon Peirce's description of the "living future," Kohn states: "For, in the realm of life, it is not

just the past that affects the present, nor is time frozen. Rather, life involves, in addition to these, the special ways in which the future comes to affect the present as well…Being semiotic creatures through and through… "we" all always have one foot (or paw) in the future…. This living future, as I argue here, cannot be understood without further reflecting on the special links that life has to all the dead that make life possible. It is in this sense that the living forest is also one that is haunted" (p. 194).

The forest/people have a living future. It is negotiated by the reconciliation with the past and an active and creative discovery of the present. This living future involves the lessons learned from a socially co-constructed purpose, the frameworks of DE, panarchy, and PES, and the ethical implications of exorcising haints. The living future can involve and integrate the actualization of the forest/people object along its own trajectory of flourishing if the people of the system choose to be in that symbiotic relationship with it. Along that path, a re-discovery of Dr. Aull's necessarily limited yet still visionary idea of a forest that is perpetually saving the Upstate is possible.

CHAPTER FIVE

THE TELOS OF CONSERVATION

Introduction

In the previous chapters, the Forest has been explored through the socially co-constructed purpose, the frameworks of Doughnut Economics (DE), panarchy, Payment for Ecosystem Services (PES), and a critical inquiry. With these separate examinations, a better understanding of the CEF emerges. The reforestation project that became the CEF was created as a massive undertaking in the 1930s in response to an over-exploited land, for the sake of protecting and valuing ecosystem services anthropocentrically. For nearly a century, the CEF has had effects throughout the region and beyond, resulting in a transformation for humans and nonhumans alike. This is the spirit of Dr. Aull's vision and it is also what we now understand as "conservation."

There are several good definitions of conservation. Gifford Pinchot defined conservation: "Conservation means the wise use of the earth and its resources for the lasting good of men" (U.S. Department of Interior, 2018). Michael Soule saw "Conservation biology, [as] a new stage in the application of science to conservation problems, [that] addresses the biology of species, communities, and ecosystems that are perturbed, either directly or indirectly, by human activities or other agents" (1985). One of the most comprehensive definitions that involves ideas of restoration comes from Cristina Eisenberg who wrote:

> *"...ecological restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed. However, in any act of restoration it is never possible to return exactly to what once was; one can only move forward. This means recovering a natural range of variation of composition, energy flow, and change, bringing a system back to its historical trajectory. Historical trajectories are only that, since we cannot predict the future. We can only work with what we think will optimize adaptability, resilience and productivity. The past is not a blueprint for the future, but we can assess these historical trajectories and think about management for future change. This calls for restoring to landscapes as much of their functional diversity as possible, which often means including top predators. Restored systems should ideally be self-sustaining and resilient, exchanging energy with interconnected ecosystems and migratory species. The system should contain all functional groups (plants, herbivores, predators) and should support reproducing populations of the species necessary for their continued development and resilience" (Eisenberg, 2013, p. 166).*

One of the results of thinking of the CEF as an OOO object, is that it challenges these concepts of conservation. It occurred to me through the three examinations of the CEF that if we apply OOO to the CEF, we have a critical understanding that involves conflict histories in addition to the frameworks and social co-construction. What happens if we look at 'conservation' through the same lens and what will happen if we apply OOO to conservation?

OOO strips away the forest-as-timber from the Forest. It sees forest-as-timber as an effect of the Forest rather than the ontological constitution. Morton shows us that

mistaking the two is placing an appearance on an essence. It doesn't mean that forest-as-timber isn't possible or even a great idea, it just positions it as a social construct, not a natural constituent of the Forest. If we de-center forest-as-timber three things happen: first, we get to ask what is the Forest, what other effects does the Forest have, and then what other effects are possible. This de-centering from forest-as-timber to a forest-object opens up the trajectory of possibility that involves PES within the DE and critical inquiries.

The relationship of the Forest to conservation and then conservation in general is a similar de-centering. Conservation has long been identified with natural resource allocation but one of the things that OOO does is allow a re-visioning of what conservation actually is. In the previous chapter we saw the similarities between Exploitative Uncle and Mutant Agriculture thinking with natural resource allocation. Here, the pivot is that much of conservation has been perceived as natural resource allocation, which is therefore an extension of Exploitative Uncle and Mutant Agriculture. We've seen that anything that doesn't fit within these perspectives is drowned, dismissed, or forgotten and this misses the forest for the trees. If conservation is perceived as an extension of Exploitative Uncle thinking, it does two things: it seeks answers for unprecedented problems of the present and future in the past, and it then manifests itself as parts-thinking rather than systems-thinking.

Conservation then becomes less balancing of a natural resource budget than it is an activity of redistributing energy and attention for system abundance. If conservation is treated as an object in the OOO sense like capitalism as an object or a religion as an

object, then a different relationship emerges between the human- or social-object and the conservation-object. If the symbiotic relationship between a person-object and the capitalism-object has resulted in much of the modern world, with all the accompanying strengths and weaknesses of that relationship, then a relationship with the conservation-object is a much different aesthetic symbiosis. Currently, conservation has been described as a "crisis discipline" (Chan, 2008) but that is only when the conservation-object is seen as its appearance of what we want it to be or as an effect of the capitalism-object. The result of this perception is the colonial science or forest-as-timber.

If the conservation-object is acknowledged and embraced as an object to be in symbiotic relationship with, what happens? What new object is develops and what is the essence of that object? Morton alludes to this in Humankind (2017) without fully re-positioning the conservation-object. Martha Nussbaum (2019) also addresses some of these issues in her Cosmopolitan Tradition (2019) and Jeffrey Sachs has some of the better ideas along this path in The Age of Sustainable Development (2015). As I write this though in the beginning of 2021, one of the more exciting developments in humanity is the nascent implementation of new ideas, like regenerative markets, circular economies, and green growth, under the auspices of an idea called the Green New Deal (GND). In a thorough analysis of the GND, Galvin and Healy share that the GND "positions addressing structural inequality, poverty mitigation, and neoliberal-driven welfare state retrenchment at its center. The resolution sees the climate crisis as interlinked with deeply entrenched racial, regional and gender-based inequalities in income and wealth, and so insists on tackling these with an array of programs that have

hitherto been seen as disconnected" (2020, p.2). This conceptualization of "interlinked" "structural inequalities" is an understanding of the conservation-object and the beginnings of a guide on how humans can be in relationship with it. This is a relationship that Dr. Aull envisioned in the 1930s when he saw the essence of the land.

Times have changed since Dr. Aull and there are new challenges on society. Morton says that we need to "live the data" (2018) and this task is the challenge of embracing the conservation-object. This is what a conservation-object is: it is living the data of the current planetary-object, as presented by DE. There are incredible examples of how projects around the world have chosen to expand their natural resource focus to not only harvest nature and provide livelihoods for the people in the system, but also actively choose to reduce greenhouse gas emissions (GHG), protect biodiversity and specifically non-utility biodiversity like endangered species, and regenerate ecosystem services. Three of these projects are explored for the lessons that they can offer to begin a relationship with the conservation-object.

Additionally, an analysis of the DE framework as a core component of the "perpetually withdrawing" conservation-object can help re-frame conservation from a crisis discipline to a proactive and creative discipline, allowing us to see the GND, the regenerative projects, and the CEF differently. Mann gives us two orthodox environmentalist perspectives in his The Wizard and The Prophet (2018) and through this analysis and the data from the CEF, a reconceptualization of conservation as an object to be in relationship with begins to emerge.

Identifying conservation as an OOO object has the emancipatory capacity to see it as an expression of humanity, one of the great expressions of humanity, freed from the limitations bounding it as merely an appearance. The conservation-object is constituted by the very difficult challenge of facilitating the survival of biodiversity (us included) on a planet indifferent to that survival with the remarkable achievements humans alone have made toward that survival. This is a cyclic and "interlinked" experience resembling the ouroboros of panarchy existing within the bounds of DE and requiring an actualized telos to liberate it from being a quality of the capitalism-object or merely as an expression-in-appearance of the humanity-object. This chapter will conclude with a discussion about where we can attempt to seek answers for our unprecedented problems, but we need to address the parts-thinking of conservation first. It is the telos of conservation that this examination hopes to start to develop.

Discussion

Fortress Conservation

One extension of this parts-thinking is one of the primary methods for protecting land, what has been called 'fortress conservation.' Fortress conservation is what it sounds: nature inside borders, civilization outside. As Siurua (2006, p. 74) describes: "This approach, often termed "fortress," "fences and fines," or "coercive" conservation was based on the North American ideal of nature as wilderness where, in the words of the US Wilderness Act of 1964, "man himself is a visitor who does not remain.""

In a recent article for Al Jazeera, Betoko and Carvalho (2020) say that fortress conservation "is ethically deeply problematic and has had horrific consequences on the

ground." Within the last couple of decades there has been an increasing call for and attempt to change this go-to method of conservation area creation but it has a long history, and affirms what many natural resource practitioners believe – that nature and people should be separate. But as Siurara (2006, p.74) points out, the evidence is mounting against the idea: "Since the 1980s, the efficacy of the "fortress" model has increasingly been called into question. The weak record of many protected areas… has led to a growing awareness that strict fortress conservation policies are in many cases failing to slow down environmental degradation, habitat loss, and the slide toward extinction of endangered species…Attention has been given to the substantial costs of conservation which are primarily borne by rural communities who are often among the most economically marginalized…"

There are several strengths to fortress conservation, the most important in my opinion is that it becomes one of the last refuges for endangered species at the edge of existence. There are also several weaknesses to fortress conservation as well, the most dubious is that it is concomitant with, if not a symptom of, an idea of divorcing the human experience from the natural experience, putting nature over there somewhere and where we live is the human experience. But as Earth First!'ers have been proclaiming for decades: there is no system but the ecosystem (Tsolkas, 2015).

As a system, it is the connection between the stakeholders and the place that matters. Conservation then becomes one method among many. "Looking at previous experiences with terrestrial conservation and in particular the history of protected areas, 'fortress conservation' without the engagement of local stakeholders has long been

recognised as an approach that is both unjust and ineffective. In contrast, 'new conservation' approaches, such as community-based conservation, treat conservation as simply one of many forms of natural resource use and acknowledge the role that markets play in the achievement of conservation goals…" (De Santo et al., 2011 p. 259).

There is no system but the ecosystem. Thinking through this maxim, we start to think of the system, or what is called a coupled natural and human system (CNHS) or a socioecological system (SES). When we start to think of conservation in these terms, we think in terms of connections and patterns rather than in binaries and dichotomies. Considering patterns, we ask why the land is the way it is and when we consider connections, we ask about the relationship between the land and the people. In assessing the system here in the American South, it is difficult to not actively acknowledge it as a place with a long history of exploitation and, frankly, evil. More to the point though, this is a history that has not been adequately reconciled.

Ironically, it is one of the earliest conservationists advocating for a Bentham utilitarianism for Forestry that we hear ideas of this system thinking. When Pinchot talks about the "Conservation means the wise use of the earth and its resources for the lasting good of men" (U.S. Department of Interior, 2018), this is a systems-thought. This is ironic however because in practice, the forestry-as-timber that was put in place was a response to rampant forest exploitation, saw natural resources through an anthropocentric utility, and benefitted a few at the expense of the many (Proulx, 2016). This is made even weirder by listening to Pinchot's alter-ego, John Muir, that we get in practice what looks closer to Fortress Conservation (Tompkins, 2020). Weird, because the 'feeling' of

listening to Muir is a feeling of purity and waterfalls and trees and bunnies frolicking in Tuolumne Meadows but is instead only a perception that discounts or ignores or deliberately misperceives the Meadows (and the rest of California and the Nation) as an actively wildcrafted land, a land that is not 'natural' as in untouched but rather 'natural-as-lived-in.' It is the Pristine Myth (Denevan, 1992) that one can only have when a genocide of indigenous people has occurred and newcomers look around and say, 'wow, this place is really something!' So, on one hand we have Exploitative Uncle thinking with Pinchot and on the other we have its extension of Fortress Conservation with Muir, both symptoms of extrinsic incentive bias trying to fix important problems, masquerading as systems-thinking but just explaining away the parts that don't fit in their system.

OOO actually listens to Pinchot rather than appealing patriarchally to the sentiment (greatest good of the greatest number in the long run) as propaganda for the forestry-as-timber, as the Exploitative Uncle purports. OOO just extends the "greatest number" to all objects by recognizing that the thing and the perception of the thing are different. What the Exploitative Uncle has done is confuse the perception of the thing with the thing: confusing the health and betterment of the forest with the actual forest. To the European descendants, what was a utopian and untouched (or in the Wilderness Act: untrammeled) land, was actually a wildcrafted, greatly worked land. Or, as our Cherokee Nation Member and Representative describes: one of the greatest civilizations on the planet that excelled in culture rather than technology. What was perceived as a Garden of Eden was really closer to a hanging garden of Babylon. This was the appearance that Muir was misperceiving and the essence that Pinchot was actually describing, whether he

meant it or not. Morton says that OOO is more Heidegerrian than Heidegger by doing a similar re-reading of Heidegger (2018). One of the things that we learn from extending OOO to conservation is that we can then be more Muir than Muir by being more Pinchot than Pinchot.

Untangling the essence of conservation from Fortress Conservation

How do we untangle the essence of conservation from Fortress Conservation then? Simply, by seeing it not as resource allocation of the toddler-esque task of putting our pretty blocks into their correct place (i.e. multiple use, visitor satisfaction, conservation area here and people over there, etc.), but by seeing it as garden of Babylon building, by recognizing, like the Cherokee, that seeing the deer as a not-perfect-Cherokee similar to a cousin and then turning that deer into a sandwich are not diametrically opposed. This is what the original task of building the Forest was anyway: saving the Upstate - the people and place - from the consequences of mutant agriculture. Carrying on in conservation with an Exploitative Uncle mindset leads us to the dichotomy of Fortress Conservation and mutant agriculture redux. Seeing conservation for what it actually does – and remember that "What I do Is Me" (Morton, Realist Magic, p.26) – facilitates a regenerative activity that not just allows for all the parts but also for the tinkerers, be they intelligent or not. Conservation seen this way is an extension of social justice with both the idea of 'social' and 'justice' extended in scale.

This isn't as crazy as it may seem on first glance. Conservation has always had to make decisions of who eats and who doesn't, who dies when and for what purposes, and how much exploitation is acceptable until a tipping point that we can't turn back from is

experienced. The only difference is that the 'who' is just usually assumed to be a 'what' (e.g., trees, deer populations, non-point-source total maximum daily loads, etc.) while explaining away the consequences that actually affect people as not within the responsibility of conservation.

A slight detour to explain the point differently. At a conference for tiger conservation in early 2020, I learned that because of decades of hard work on all fronts by dedicated conservationists, wild tiger populations were the highest they've been in a century! Truly an admirable and incredible expression of intelligence, empathy, and technical prowess by our species. This kind of success is why I consider myself a conservationist and why I've dedicated my personal and professional life to this mission: I truly believe it is an important expression of the pinnacle of humanity's capacity and I want to be a part of it. But I also learned that there are probably as many tigers in captivity as there are in the wild, if not more, and that the entire tiger conservation world focuses on the three thousand or so wild tigers and basically ignores the other three thousand. Baffled, I asked why half of the tigers alive on the planet are ignored and was told that that is an animal welfare issue not a conservation issue. This, to me, is Exploitative Uncle thinking par excellence. As someone who believes my only real skill is as a project manager, I get it though. That's a wildly messy task to unravel and to achieve goals (e.g. not losing tigers from this planet), you need to break tasks down into objectives and develop timelines and interim deadlines. But there is a haint about this problem too: what are we trying to do as conservationists if we're literally not counting half of a population of a thing just because it exists in a Texan backyard rather than in the

Sundarbans? Accepting that tigers-in-captivity may be a conservation issue is an uncomfortable middle ground and the initial brainstorming about solutions lead me into very uncomfortable thoughts. If there is no boundary between animal welfare and fortress conservation, then do we put all tigers in cages or is the genetic material the only thing that matters about tigers? Is a tiger really "a tiger+it's habitat" or is a tiger that exists 50 kilometers from where it 'should exist' an invasive species? Or, what happens when global warming takes away all the habitats where tigers 'should exist,' do they become invasive species then?

But just because it's not one or the other doesn't mean there aren't an infinity of other options to pursue. Or, more accurately: there are an infinity of other options that we could create. To me, that is conservation's greatest strength: humanity has never practiced conservation before because we have not had to. We have never had to share panda bears around the world to figure out how they mate best or build forests for no other reason than to absorb carbon. We don't have a playbook on how to do it like we do war, cooking roti, house building, soccer, or any of the infinity of other rich expressions of humanity that we've crafted in the last 60,000 years. It is a craft and a creative one built on discovery, practice, and re-discovery. But it is not built on going back to the past for our answers. It can't be, no one in the past has dealt with the issues we have today, and no one has had to figure out how to not exceed the 9 planetary boundaries while also maintaining the 20 sustainable development goals. Living within the Safe and Just Operating Space is a creative act of social justice, and that creative act is a practice where

the answers exist in the future that we don't know yet. And we can only know these answers through what we figure out by expressing our social justice.

Upon reflecting on this idea as I tried to make sense of the haints, conservation as a social justice issue has never been confusing to me. In fact, I learned the foundations of what I know to be conservation by originally reading Frantz Fanon, Aime Cesaire, and Langston Hughes. They questioned what it means to be a black man in a world that considers you at best a problem. I've since come to learn that WEB DuBois literally identified this as the Negro Problem in 1906 (Morris, 2017). Positioned as a crisis discipline, I was drawn to conservation as a way fix a problem, to contribute to something meaningful, and to rebel against exploitation, but all the environmental texts I was encountering were waxing poetic about the spiritual draw to nature or how terrible the situation was. It was only through looking at Negritude writers that I could see that the narrative was flipped: it wasn't the Negro that was the problem, but rather the system that positioned them that way. That made far more sense to me at the time than Muir. At the time I was reading them initially, I was working on watering flowers for a native plant garden (often at the same time) and saw no difference between questioning what it means to be an endangered species in a world that considers them to be at best a problem. Often, endangered species have no anthropocentric utility, they fill an ecological structure and function niche that is sometimes better filled by another species. By definition they are already existing in precarious situations by being overly-adapted to a specific condition (i.e. hypercarnivores, specialists, etc.). My question was what role do endangered species play then if it isn't totally utilitarian, totally ecological, totally

linguistic (i.e., is 'endangered' just a human creation?), or human consumerism just flipped upside down (i.e., just like I can pay to eat a steak, I can pay to keep an endangered bison alive)? At that point, it's hard not to see the dialogue surrounding endangered species as a moral conversation of what it means to be a moral human, what it means to express humanity creatively.

What is far more confusing to me is trying to understand that conservation exists as an unprecedented expression of humanity. Social justice has a trope, an archetype: we think of the Gandhis, the Martin Luther Kings, the Angela Davises. But what happens when we don't have an archetype on which to base our knowledge of what to do? What happens when we don't have archetypes for conservation as social justice? The trope for conservation has been the white guy in khakis: Audubon, Teddy Roosevelt, John Muir, and all the way up to the Crocodile Hunter. The exceptions make the rule even more: the Jane Goodalls, the Diane Fosseys, the Rachel Carsons. I love all of them and they are all heroes that have a place on my office wall (literally). But they have only been able to tell us what is, rarely telling us what can be. Often, when conservationists try and walk into the social justice realm they get pigeon-holed in environmental justice.

Without being able to look to the past for answers and with trying to think in systems that combine planetary boundaries and social foundations, who can tell us what *can* be? Another thing I learned from the Negritude writers is that the past is no place to seek knowledge for the future. Concluding his epic Black Skin, White Masks that positions the black man as unconditionally worthy, independent of extrinsic value, Fanon says: "Whether you like it or not, the past can in no way be my guide in the actual state of

things" and "I am not a prisoner of History. I must not look for the meaning of my destiny in that direction. I must constantly remind myself that the real leap consists of introducing invention into life. In the world I am heading for, I am endlessly creating myself. I show solidarity with humanity provided I can go one step further" (Fanon, 2008, p.200). With a history of exploitation, it is not through reference to the exploitative past where we discover ourselves anew. It is through "invention" and "creation" that we can "show solidarity with humanity" and define the "meaning of [our] destiny," "provided [we] can go one step further." As one of the strongest and most respected voices in postcolonial and pan-African work, Fanon, a psychiatrist and social critic, was contributing to the liberation of black psychology from oppression.

Fanon's work applies to all victims of exploitation though, as exemplified by the many references to his texts and re-readings. For example, Glen Sean Coulthard titled his "rejection of colonial recognition" exploration of Canadian First Nations people in his Red Skin, White Masks (2014). In an attempt to not appropriate the struggle of the oppressed or marginalized, I would however like to apply this same de-centering logic to frame nature and natural resource use in an inventive and endlessly creative process that seeks to show solidarity with humanity. This is more conservation-as-trajectory than conservation-as-relic-of-colonial-expression and it is defined independently, requesting action related to the trajectory rather than a passive romanticism of the relic. Or, as Fanon calls it: "actional" and "in-itself-for-itself" rather than "reactional" (2008, p.197) to a preconceived way of thought.

In conservation, there is actional and reactional but the other split is what Mann (2018) calls an environmental 'Wizard' spouting redemption through better technology or as an environmental 'Prophet' telling us to return to a Bronze Age agrarian lifestyle to avoid Malthusian overreach. The problem with "environmental justice" is that it is parts-thinking like the Endangered Species Act – revolutionary, necessary, and worthwhile in its own fight, but not enough. The problem with the Wizard and the Prophet is that they are still looking to the past to deal with the present, let alone the future.

One possible contribution to Mann's dichotomy is to make it a four-part typology (Figure 17). If the Wizard is one who sees technology as the answer and the Prophet as the one who advocates limiting ourselves, perhaps adding a systems-approach can help expand the ethics. Adding a systems-approach helps us think outside of fortress conservation and colonial science. The psychologist Carol Dweck contributes to positive psychology by making the distinction of a growth and scarcity mindset (2008), and there could be benefits to adding this idea to systems thinking as well. In this typology, what I am calling a *protector* is a systems-based environmentalist, working to stop further extinctions or stop desertification, for example. A *holistic designer* is a systems-based innovator pushing the bounds to create regenerative habitats, as in permaculture design (Mollison, 1988) or in the GND, for example. As Mann concludes his book, he finds that on some days he is thinking as a wizard and others as a Prophet, both necessary in different capacities. Similarly, this four-part typology is value-neutral, with no one paradigm better than another at all times, just different for different problems.

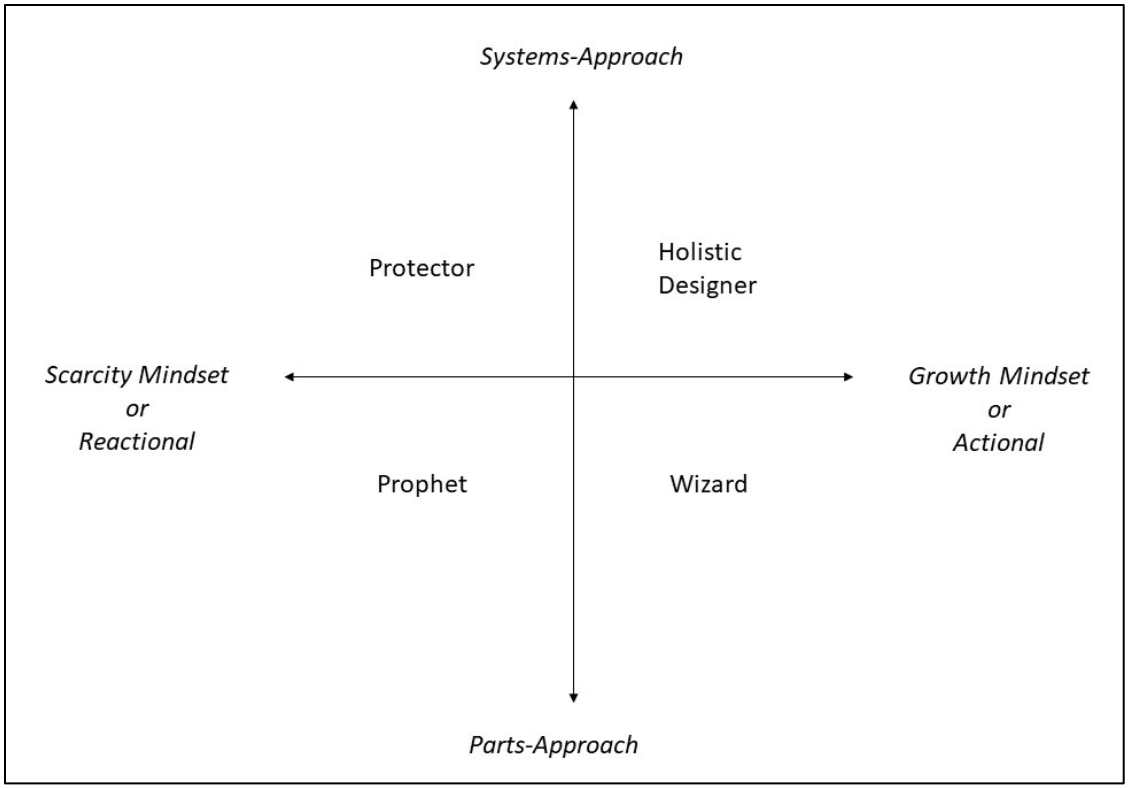


Figure 17. Conservation as creative expression typology, or the Possibilist Mindset

Holistic Designer - Conservation as Systems Creativity

In considering guides for endlessly creating ourselves, who can we turn to? In reframing conservation this way, I have been gathering visionary examples of projects that are in this process. This new conceptualization of conservation has both a variety of names (i.e., community-based conservation, Payment for Ecosystem Services, Reconciliation Ecology, etc.) and also no names or language to adequately describe it. In conversations with members of the Cherokee Nation, they have depicted their pre-European-contact method of utilizing natural resources as "wild-crafting." This is closer to how I am seeing it and while, in my experience, there is not adequate contemporary language to describe this new conceptualization of wildcrafting, this "multiple level of

benefits" with nature, there are examples of it. In fact, Dr. M. Sanjayan, the CEO of Conservation International, created and hosted an entire documentary series on this idea in Earth, A New Wild (2015). Beyond these examples, there are three instances of this new idea that have lessons for both a reconceptualization of the Forest and conservation in general are the ecosystem-based aquaculture of Veta la Palma in southern Spain, Gorongosa National Park in Mozambique, and Dr. Gladys Kalema-Zikusoka doubling the mountain gorilla population in Uganda.

Veta la Palma

On approximately 27,000 acres in southern Spain there is an ecosystem-based aquaculture where a silted over and polluted river once existed. Veta la Palma manages fish farming, dry crop farming, and cultivation of rice, intermixed with over 12,000 acres of marshlands. Through this integrative process they have restored the polluted river while also providing refuge for over 250 bird species reaching populations of up to 600,000, "of which some 50 species suffer some degree of threat in other areas" (Barber, 2010).

According to their website (Veta la Palma, 2020): "Fish farm production at Veta la Palma involves the application of sustainable modern technology throughout an innovative breeding process which generates benefits for the environment and is aimed at guaranteeing maximum quality at all times. As a result of natural feeding our fish [are] of exceptional quality in terms of freshness, texture and flavour and is considered a gourmet product which is much appreciated by exponents of haute cuisine. Fish are caught daily

and the produce is sent, always in optimum conditions of freshness, to restaurateurs and clients from all over Europe."

Rather than working against nature in an extractive capacity, the avian predators of the system help regulate the fish, the various aquaculture and wet and dry crops act as "treatment plants which transform nutrients (nitrogen, phosphorous, etc.) into biomass." The "complex trophic network" contributes to multiple ecologic processes and "generates a significant secondary production of crustaceans and other aquatic invertebrates which make up the trophic basis which supports both the reared species and large amount of birds which are present in the area at any time of the year."

Gorongosa National Park

After an incredibly destructive civil war that ended in the early 2000s, Mozambique transformed their fortress conservation of Gorongosa National Park into one of the largest employers of local people through agroforestry while also drastically increasing the habitat function and wildlife populations. According to their website (Gorongosa National Park, (n.d.): "Gorongosa National Park (GNP) in Mozambique is perhaps Africa's greatest wildlife restoration story. In 2008, the Government of Mozambique and the Carr Foundation formed the "Gorongosa Project", a 20-year Public-Private Partnership for the joint management of the Park and for human development in the communities near the Park. On June 7th 2018, the Government of Mozambique signed an extension of the management agreement of Gorongosa National Park for another 25 years." Their approach is based on combining conservation and science with

the community through educational programs, health care, and agricultural support to families, and sustainable tourism.

What makes it even more remarkable and relevant to the conflict histories within the Forest, is that all of this was done in direct response to the horribly destructive civil war. According to the Independent: "In the 1960s, Gorongosa was one of the most popular parks in Africa, visited by Hollywood stars and wealthy travellers….[by2005] Gorongosa had been a key battlefield in Mozambique's brutal, 16-year civil war, with the Renamo resistance fighters using nearby Mount Gorongosa as their base – and the park had been utterly decimated. A few months later, Galante happened to meet US philanthropist Greg Carr in Maputo. Carr had a plan to work with the government in a long-term, public-private partnership to restore Gorongosa, primarily to uplift and empower the surrounding communities. Galante signed up immediately… In 2008, a 20-year joint management agreement was signed between Carr's Gorongosa Restoration Project and the Mozambique government; and extended a further 25 years in 2016. Since then, the park has battled relentless poaching and worked around flare-ups in government/rebel tensions – yet despite what they were up against, the project's successes are numerous…. In 2008, there were around 10,000 large animals in Gorongosa; today there are over 100,000. Wildlife crime has been aggressively tackled with key leaders of domestic poaching operations arrested and over 200 rangers employed to patrol the park. Gorongosa has become an international centre for science, attracting academics from all over the world. Over 600 people are employed by the park and the two biggest departments are human development and sustainable development.

Industries such as cashew farming have been set up in the buffer zones. The Girls Club aims to keep girls in education and give them choices in life. Thousands of local children are brought into the park every year to learn about the ecosystem and experience safaris for themselves, inspiring the next generation of conservationists…. People are central to the project: 98 per cent of the team are Mozambican, 85 per cent are local, and education and training opportunities range from the Community Education Centre to the master's programme in conservation biology, which was officially launched in April this year with 12 local students (five of whom are female) currently enrolled. It is considered the first master's programme to be taught entirely within a conservation area and the aim is to enable the next generation of Mozambicans to become vets, ecologists and lab technicians" (Richardson, 2019)"

The ecological metrics are remarkable as well. According to CNN: "Since [the civil war], millions of trees have been planted, animals -- including wild dogs, elephants, hippos, zebra and buffalo -- have been translocated into the park, and a team of rangers has been trained to combat poaching….These efforts have paid off. During the last aerial survey, in October 2018, more than 100,000 large herbivores were counted in the park…. But the work didn't stop there. As well as restoring the park, Carr and his team have created new opportunities for women in a bid to tackle Mozambique's entrenched gender inequality….Currently, a third of the park's 600-strong workforce is female -- with a goal to reach 50%.... Mozambique has one of the highest rates of child marriage in the world, with almost half the country's women becoming brides before the age of 18. Sousa says that Girls Club encourages girls not to drop out of school to get married. Girls who

complete high school have better employment prospects and more life choices -- which can help to break the cycle of poverty. A key focus is moving the needle on literacy. According to UNESCO, 58% of Mozambique's women are illiterate (compared to 45% of the adult population as a whole)…. Sousa points to the trickle-down effect of female education. "If the mother is educated, she will ensure that kids are educated"" (Tham, 2020).

Dr. Gladys Kalema-Zikusoka

My favorite example though is of Dr. Gladys Kalema-Zikusoka in Uganda. The winner of several globally recognized conservation awards and a National Geographic Explorer, Dr. Gladys (as she prefers to be called) doubled the Mountain Gorilla population in Uganda through women's health and family planning efforts and building community-led agroforestry (Conservation Through Public Health, 2020).

Dr. Gladys is a wildlife veterinarian who went to school at University of London's Royal Veterinary College and established the first Veterinary Unit at the Uganda Wildlife Authority in 2000. Seeing the poverty of the community and the increasingly threatened gorilla populations and their habitat, she took a novel approach. Instead of the fortress conservation, or the many versions of it, Dr. Gladys established two non-profits: Conservation Through Public Health (CTPH) and Gorilla Conservation Coffee. According to their website: "CTPH has three integrated strategic programs: Wildlife Conservation, Community Health and Alternative Livelihoods. Poverty alleviation and improving rural public health will contribute to greater biodiversity conservation and sustainable development in and around Africa's protected areas."

(Conservation Through Public Health, 2020). CTPH focuses on poverty alleviation and family planning because she noticed that young men go into the forest to provide bushmeat for the family and become threatened when they come across a gorilla and would harm or kill the animal.

Similarly, Gorilla Conservation Coffee, the agroforestry initiative that utilizes land surrounding gorilla habitat, was created to both offer jobs for locals as well as intrinsic motivation to steward and discourage others from disturbing the land and wildlife. According to their website: "Due to their close proximity both inside and outside the national park, preventable infectious diseases are being spread between humans, gorillas and livestock. This along with habitat encroachment, poaching and economic instability, is threatening the existence of the mountain gorilla…Gorilla Conservation Coffee was launched after Dr. Gladys Kalema-Zikusoka visited farmers living adjacent to Bwindi Impenetrable Forest. Here she learned that the farmers were not being given a fair price for their coffee and were struggling hard to survive, forcing them to use the national park to meet their basic family needs for food and fuel wood… Supporting local farmers helps to protect the critically endangered gorillas and their fragile habitat" (Gorilla Conservation Coffee, n.d.). Additionally, "Gorilla Conservation Coffee makes a special effort to support women coffee farmers, helping to provide opportunities for women's economic empowerment, disrupt male financial dominance and break ingrained stereotypes in the communities" (Gorilla Conservation Coffee, n.d.).

The combination of successes from both CTPH and Gorilla Conservation Coffee have allowed the community to thrive and the mountain gorilla population to double.

Gorillas are “gentle giants” that prefer to be left alone. In conversation with Dr. Gladys, she said there is a saying among those that work with primates: chimps are the apes we are, and gorillas are the apes we’d like to be. It is through efforts like these – approaches that see conservation as not a dividing effort but an effort of partnership – that conservation is innovative.

Characteristics of this type of conservation

This conservation is a different type of conservation. In this paradigm, conservation is a creative act of social justice, expanding both the idea of creative as well as social. I don’t know if it’s for everywhere or for every problem but there are some special characteristics about it that could be applied universally. As a start to understanding this different type of conservation, I offer a reflection on my experience in the CEF’s forest/people system and my interpretation of the above examples to help develop six characteristics of this kind of conservation. Hopefully, these characteristics can help start a different “actional” and systems-based understanding: creative, systems-thinking, ‘we get to,’ accessible and egalitarian, the process is as important as the product, and a focus on intrinsic motivations.

1- Creativity

A holistically designed conservation is creative. Thinking ‘action-ally’ rather than reactional, creative conservation does not come from a defensive standpoint but rather a proactive one. Following the OOO thinkers, this conservation doesn’t assume a ‘true self’ is in the past. We see this in the examples above. Dr. Gladys is a wildlife veterinarian. What preconceived role should allow her to think about coffee, let alone family planning?

The out-of-the-box creativity to realize that all these parts are connected and that there is a benefit to each from working with each is an important component of an actional conservation.

2 - Systems-thinking

This type of conservation is systems-based. Systems-thinking doesn't sacrifice the puppies for the dog, the trees for the Forest. It's not afraid to apply harvesting or extraction techniques but it does so with Raworth's concept of thriving in mind. Coupled nature and human systems, socioecological systems, community-based conservation, and many of the other systems-based approaches utilize systems thinking in their measurements. One of the differences I see in these examples is how the intentionality of the system is established from the beginning rather than as a set of metrics retroactively. The folks at Gorongosa know that their surrounding community is absolutely critical to stop poaching and that the basic needs provided in part by the national park are absolutely critical to the community.

Like all projects, they also have very clear metrics of success. These metrics range beyond one part though, and, as importantly, aren't sought after at the expense of short-term gains or losses to other metrics. The gorilla population grows as family planning increases.

Another important component to systems-thinking is that if we scale up to the planetary perspective, there is no such thing as waste: what you flush doesn't go away and there is no 'away' to throw your garbage. Morton addresses this (2010) but it is also identified in Veta La Palma and how they manage their aquaculture. The fractal scaling

down of this perspective allows us to realize that even within our local systems, 'waste' is merely a systems-based opportunity that we haven't figure out yet.

3 – "We get to"

Morton says that environmental writers dump data on us (2018), thinking that continuing to tell us how terrible the situation is, we will collectively rise to the occasion. Instead, he argues, this produces an ennui, and we need to start living the data (2018). We don't know how to live in a way that we haven't had to before and addressing unprecedented systems-based challenges requires a different intentionality. The examples above also take it one step further and perceive the problem as one they 'get to tackle.'

This thought occurred to me serendipitously. In early Spring 2020, I had an illuminating chance experience. Asked to contribute as a guest lecturer in a Parks, Recreation, and Tourism class about the Forest, I was sharing what I know of the conflict histories to a group of undergraduate students when one of them asked me why we should care about these histories. My off-the-cuff response was that 'we get to' care about these problems here and I went on to elaborate that there are so many big, disparate, diffuse, nonlocal, multivariate, wicked problems around the world that make us feel so helpless (this was right after the devastating Australian wildfires and before COVID took hold). I explained that we should care because when we 'get to' actually address one of them, it gives us rare access to agency in an otherwise listless experience of anomie. Sharing this idea with the students was new enough and odd enough for me to ask myself, do I actually believe this? Since then, I've been paying attention to how other conservationists tackle system problems and I am seeing this perspective more often.

4 – Social Justice: Representation, Accessibility, and Egalitarianism

The conflict histories in the forest/people system show us that not everyone has had access to the various transformations of the forest equally. This is much the same story in the fortress conservation narrative globally. Projects like Gorongosa are working to reconcile with this challenge and develop social justice holistically.

Similarly, this also relates to the fallacy of bootsrapping – getting yourself out of your situation with existing resources. There is sometimes an illusion that conservation is behavior dependent on a few individual actors: people who litter, those who drive gas-guzzlers, etc. This is one of the problems that the people in South Carolina faced when continuing their exploitative ways of cotton agriculture prior to Dr. Aull's re-ordering of the system. The system is regularly caught in a bureaucratic or poverty trap along the panarchy loop. Being caught in a bureaucratic trap sounds a lot like addiction – repeated use regardless of harm. We see this in the false narrative proposed by corporate-led marketing tactics behind Keep America Beautiful and the Global Warming denial. Keep America Beautiful was a nation-wide campaign that used the "Crying Indian" that superficially promoted recycling and anti-litter (Wilkins, 2018). In reality, the "Crying Indian" was an Italian-American actor "crying" on behalf of Keep America Beautiful, a non-profit created by "Coca-Cola and Anheuser-Busch, along with Phillip Morris and others" to assuage the increasing protest of plastic use by convincing everyone that plastics can be recycled and it is only the litterers that are to blame. Similarly, Oreskes and Conway (2011) show that many of the same tactics were used to calm an increasingly worried public about the dangers of global warming. Powerful actors like

fossil fuel companies working on behalf of their own self-interest may perpetuate these traps at the expense of the larger trajectory and decrease the egalitarianism of access for other actors. It is important to recognize that these systematic traps limit an individual's agency regardless of how well-intentioned they may be. This type of conservation is parts-based at best, racist and exploitative at worst.

This social justice characteristic of conservation also includes an extension of the Raworth's critique of traditional economics (2017) that fails to internalize the externalities by including the social cost to the cost of exploitation of natural systems. Jeff Sachs discusses this in The Age of Sustainable Development (2015) when he analyzes fees or permits for polluters. The true social cost of the activity needs to be included without unfairly passing a prohibitive cost on to a consumer, thus pricing them out of access. Access to the benefits derived from a conservation-object shouldn't be available only to those who can pay a higher market cost, as is the case with expensive organic food, for example. As Flowers describes in her book about Alabama's environmental racism, Waste (2020), it also shouldn't be contingent upon a marginalized or poverty-stricken family or community to relocate from a contaminated geography, a place that the traps of the failed system keep poor people living among human waste and susceptible otherwise eradicated neo-tropical diseases.

Similar to the intentionality of the creativity and systems-thinking aspects, the holistic design examples demonstrate that they are growth-mindset oriented, opening themselves to accessibility from various sources. For example, Gorongosa was open to cashew-farming, Dr. Gladys empowered the coffee co-op, and Veta la Palma was

accessible to predators eating their 'profit.' These designs actively integrate social justice into their systems.

5 – The Process is as Important as the Product

In the holistic design examples, there is a component of process where learning and fairness contribute to the system's improvement. There is a type of regulatory or policing action called procedural justice that speaks to the idea of this. Procedural Justice (PJ) is seen as "four principles, often referred to as the four pillars: 1) being fair in processes, 2) being transparent in actions, 3) providing opportunity for voice, and 4) being impartial in decision making" (Rahr, 2014). I like to also envision it with either a fifth pillar or as just a summary of the idea as "the process is as important as the product." Similar to systems-thinking, PJ recognizes that the result at the expense of other factors is untenable; PJ just happens to make those other factors the process in which it occurs. In Chapter 3, we showed that DE is the context of scale and interconnectivity of systems-thinking. PJ then is the context of time and transformation within panarchy but recognizing that panarchy is a-moral, or value-neutral, focused on explaining how a system goes through a process. PJ instead adds an ethical component to panarchy, and says that, at the very least, you have to recognize that there is always a back loop to every front loop, that what is capital-building to the hegemony will be exclusionary and chaotic to another party.

Instead of calling it procedural justice as this has command and control feel, perhaps a "procedural learning" or simply seeing it as process being as important as the product explains this characteristic.

6 - Intrinsic motivations

Conservation has often been seen through the Exploitative Uncle utilitarianism that discounts systems for the parts. As a means-to-an-end approach conservation actions that protect ecosystem services are very important for ecosystem functioning but not when they are at the expense of the intrinsic value of the other parts of the system. In this characteristic, the intrinsic motivations of non-human-objects are recognized and those intrinsic motivations of flamingoes, coffee, gorillas, and cashews, play an important role in the system.

Trying to recognize and incorporate the intrinsic motivations of all the OOO objects in the system creates an expansive knowledge, in the "procedural learning" sense as well. This knowledge-through-process may change how we then ontologically experience conservation as well. The nearest analog I can think of is the Sapir-Whorf hypothesis of language: "that the structure of a language determines a native speaker's perception and categorization of experience" (Kay and Kempton, 1984). Procedural Justice is then not only "the process is as important as the product" but "the process that changes our perception of reality." And as we learned from social psychology with the Thomas Effect: if people define situations as real, they are real in their consequences (Morris, 2017, pg. 5). Like Dr. Gladys and the gorillas, if we start from a baseline that gorillas have intrinsic motivations, our expanded perception of reality will have consequences that include not just the gorillas but other species and their motivations.

Intentional choice

One of the ways these characteristics of conservation can be summed up is as an Intentional Choice. As the inaugural Chair in Astrobiology for NASA/Library of Congress, David Grinspoon has identified the "four kinds of planetary change" (Grinspoon, 2016) as:

> *"1. random change*
> *2. biological change*
> *3. inadvertent change*
> *4. intentional change"*

Random changes are asteroids and volcanos, biological changes are the Great Oxygenation Event and the Cambrian explosion, inadvertent changes are what humans have increasingly been doing for the past couple thousand years with making other species go extinct and contributing carbon to the atmosphere, and intentional changes are the ones that conservation has been experimenting with for only the past several decades. Intentional change involves everything from tackling the plastic pollution problem to reforestation and carbon dioxide removal. Grinspoon sees that "in an important sense" these are all geoengineering. He makes the simple pragmatic argument that right now we're geoengineering inadvertently, acting like everything on the planet is for human purposes anyway. Even when we separate humans and nature (Fortress Conservation), we are making decisions by not making a decision, by abdicating our responsibility. This kind of Exploitative Uncle thinking leads us to inadvertent changes. Grinspoon instead recommends that we take the responsibility of our changes and see ourselves as "apprentice planetary engineers, easing up on those behaviors that have been throwing

the system out of balance, taking those steps we know are safe, and learning all that we can about how the system works so that by the time we need to call upon more intensive interventions, we will be ready to do so safely and wisely" (p.193).

Grinspoon also applies the Kardashev Scale to these choices, with Type 1-3 civilizations of technological advancement. A Type 1 Civilization is one that can harness all of the energy that the sun offers to a planet, Type 2 is all of the energy of the sun, and Type 3 being all the energy of the galaxy. Other thinkers have expanded this with equating a Type 1 Civilization with emancipatory energy access that would have positive cascading sustainable development and conservation impacts (Wright, 2000).

If we combine DE and Grinspoon's Intentional Change derived from the Kardashev scale (1964), we get a doughnut seeking a goal or purpose, a telos. The conservation-object then is an object constituted by DE guided by the Intentional Change, seeking the essence of a Kardashev Type 1 Civilization as the tipping point in the panarchy front loop before a reorganization that begins to think about Type 2. The essence of the conservation-object is the telos of a Type 1 Civilization as the guide to addressing the design of 6 characteristics (Figure 18). An intentional ecology that incorporates the humans and nature is what the creators of the Ugandan Gorilla system, the Veta la Palma wetlands, and the Gorongosa National Park have been creating. They have been seeing the essence of their work in their future, not in maintaining the haints of the past.

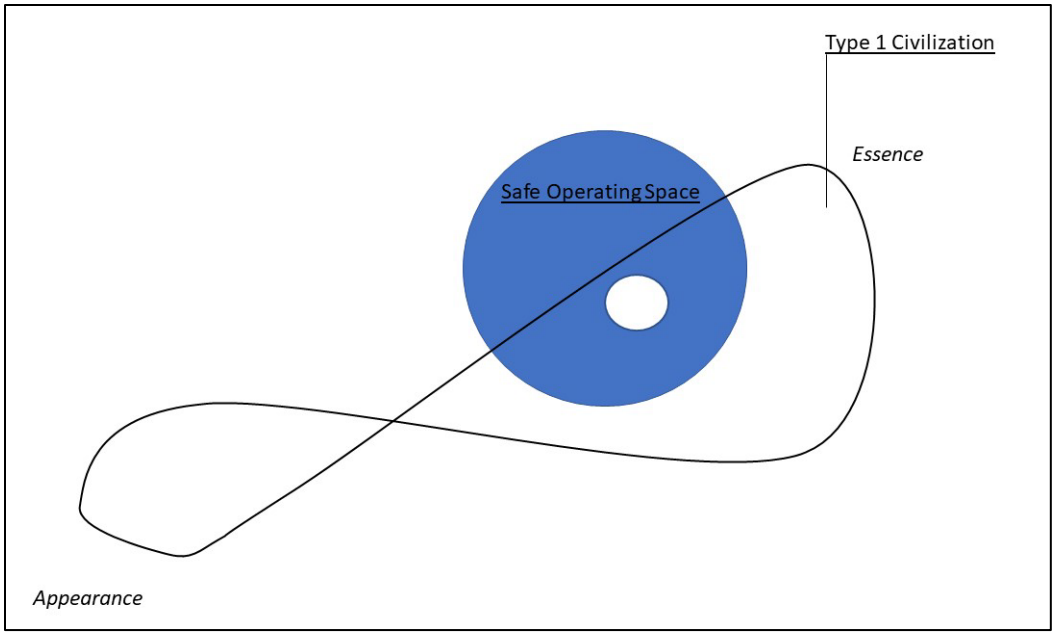


Figure 18. The Telos of Conservation, combining Doughnut Economics, Panarchy, and Intentional Choice

Criticisms

I can think of a couple criticisms to this idea. The first being that that if we carry the prescription of intentional change through creative social justice further, it starts to resemble the very things that the precautionary principle was developed to warn us against. The second is it is not reasonable at a global scale. And the third is that the idea of conservation as creative social justice and intentional ecology is a mouthful of vaguely interconnected thoughts that denies falsifiability or any of Popper's ideas of hypothesis testing. These three criticisms are criticisms of various conservation prescriptions as well as some challenges being wrestled with in science.

Precautionary principle vs. vigilance principle

Employing novel ideas carries with it consequences. The concept of ethical precaution has been recommended before implementing environmental prescriptions. And, for good reason – the dangers of unanticipated consequences are real. The precautionary principle is defined as: "the principle that the introduction of a new product or process whose ultimate effects are disputed or unknown should be resisted. It has mainly been used to prohibit the importation of genetically modified organisms and food" (Foster, 2000). Stewart Brand recommends that we also adopt the vigilance principle: "The emphasis of the vigilance principle is on liberty, the freedom to try things. The correction for emergent problems..." (Brand, 2010). While on the surface, seeing conservation as an act of creative social justice, as holistic design, or intentional change looks like a win-win scenario, vigilance and precaution are still necessary.

Related to these ideas is an important note of caution. As I think through these things, another haint is visiting me. It is the haint of parts-thinking of all who say: if we just do this one thing, then everything will be fine. Here, I can see this holistic design as being interpreted as "if we just think of conservation like social justice, then everything will be fine." That gives me shivers because that is an extension the same reasoning of Malthus, Galton, and Paul Ehlrich's interpretation of neo-Malthusian thought and the population bomb (1968). Like the Exploitative Uncle, these people truly believed that what they were doing was best for society. That should scare all of us at least a little bit because it is victim to several cognitive biases, including Hannah Arendt's banality of evil (1970) run amok. Galton truly believed that humans would degenerate if races

mixed, partially because of the information he had access to and partially because of the information he chose to have access to. It would be more convenient for me to think that he was a genuinely evil person inherently or psychologically repressed more than the rest of us. And while he might have been both, all of us are at risk of being victims to this thinking. It doesn't excuse them or take them off the hook ethically, but it does speak to our actions now. Maybe instead of interpreting it as "if we just think of conservation like social justice, then everything will be fine" maybe we interpret it as "we're playing a serious game, but we shouldn't be afraid to perpetually create ourselves anew and seek to discover a new morality of living with the planet." I do not know if this covers it completely (I don't know if it can) but I think it helps point it in that direction and away from the Exploitative Uncle.

Not universal and not having language

Whether this concept of conservation can be applied globally or whether it can be scaled up beyond the local and regional scales, is unknown. It is a vague notion but activities like GND trying to implement regenerative and circular economies are making it less vague.

How do we describe Dr. Gladys' work? Is it habitat restoration, agro-forestry, gorilla conservation, or human ecology? Can we scale it up to include all of Uganda and address issues of healthcare and poverty while increasing wildlife populations? I don't know but I also don't know if that's the point. It may be that she discovered her method worked for her system and she didn't delimit herself and her actions by her title as 'veterinarian.' Using Mann again, this is partially a prophet view of encouraging an

indigenous mindset of ‘wild-crafting’ the environment rather than dominating it. But it is also partially a wizard view, utilizing innovative techniques (like birth control, carbon capture, and atmospheric water generator, for example) to further our capacities and discover our morality through the invention of it.

This is hard to put into language because we have a history of thinking in parts and instances rather than systems and processes. Relatedly, we also have a history of positioning the human over the non-human and our language reflects that. Or, I have not found adequate language to describe it. In my own search, I have found many examples of this but only oblique references to the idea of intentional change for the sake of DE systems to propel humanity and nature forward together. In addition to the examples above and Grinspoon’s theoretical contribution, I have found a few others that are trying to speak to this (many in the titles of their work) Judith Schwartz “Reindeer Chronicles” (2020) is a great text showing these types of projects globally. Rosenzweig’s “Reconciliation Ecology” (2003) has a focus on the financial capacities, Marris’s “Rambunctious Garden” (2013) addresses how to accept the messiness of this idea, Paul Hawkens explores the planetary interconnectedness in his “Blessed Unrest” (2007), Robert Wright uses “Nonzero” to play with ideas of “human destiny” (2001), and Smithsonian’s Earth Optimism project is an entire focus from the Smithsonian attempting to understand the idea (Smithsonian’s Earth Optimism, n.d.).

The absolute best example of a holistic design approach of treating conservation as a creative act of social justice that I have come across however, are what are called Nature Based Solutions (NBS). Created by the European Commission in 2010 and

utilized by the IUCN and an increasing number of organizations, NBS are defined as: "living solutions inspired by, continuously supported by and using nature, which are designed to address various societal challenges in a resource-efficient and adaptable manner and to provide simultaneously economic, social, and environmental benefits" (Maes and Jacobs, 2017). The IUCN (Cohen-Shacham et al, 2016) recognizes that human well-being and biodiversity benefits are collectively societal challenges, and that innovative ecosystem-based approaches that involve "protection, issue-specific, infrastructure, management, and restoration" can meet these societal challenges holistically. Defying a single approach for all problems, NBS "uses the tools that nature already provides to address issues resulting from poor land or resource use, climate change or societal challenges. Solutions often enhance existing natural or man-made infrastructure and spur long-term economic, social and environmental benefits" (IUCN, 2021). NBS look different wherever they are implemented and the increasing scholarship and expanding portfolio of practice are inspiring approaches of holistic design.

NBS shares a similar perspective taken by some of the conservationists that anticipated this route of conservation. Michael Soule considered himself a 'possibilist,' when asked whether he was an optimist or a pessimist (Wildlands Network, 2020). Paul Hawkens said that "When asked if I am pessimistic or optimistic about the future, my answer is always the same: If you look at the science about what is happening on earth and aren't pessimistic, you don't understand data. But if you meet the people who are working to restore this earth and the lives of the poor, and you aren't optimistic, you haven't got a pulse" (2007). In The End of Poverty, Jeffrey Sachs, when discussing the

economic development necessary to address social inequality, discusses a question he is asked regularly: “Am I an optimist? Optimism and pessimism are beside the point. The key is not to predict what will happen, but to help shape the future” (2006, p.2).

Application in the CEF

Perhaps we can go back to Raworth’s Doughnut Economics to help us try and think about how to do this with the Forest/People. Her project has gained momentum as it is being deployed around the world. With this community-based approach to implementing Doughnut Economics, she suggests people ask the following questions prior to environmental planning (Fanning, 2020):

- *What would it mean for the local people to thrive?*
- *What would it mean for the local people to thrive in their natural habitat?*
- *What would it mean for the local people to respect the well-being of the people worldwide?*
- *What would it mean for the local people to respect the health of the whole planet?*

This reflexive activity may prove beneficial within this system. However, taking what we’ve learned from Dr. Rhondda Thomas and the haints, as well as Morton and OOO, we cannot abdicate our responsibility to also ask:

- How do we best reconcile with the conflict histories to emancipate ourselves and permit social justice?
- How do we best express ourselves to discover what we and our home are capable of within the conservation-object relationship? How can we start from a Possibilistic Mindset to apply Nature Based Solutions first, before trying other alternatives?

Thinking through these examples, the current social characteristics, and anticipated growth of the US Southeast, the Clemson Experimental Forest -and the American South in general- may be uniquely positioned to conceptualize conservation as a creative act of social justice. The ability to encourage and empower people to express their intrinsic motivations within the clear boundaries of DE and the stated needs of the property owner (CU), has the potential to be a win-win situation. Enterprising intentional choice activities that enters into partnership with CU, with the community, and with the various histories could allow rural people to discover new definitions of meaning for self and system or fully expand into their own flourishing.

This Forest is an ideal place to practice NBS of a Possibilistic mindset. The Forest/People have all the ingredients to do exactly this. Actually, they have more ingredients and historical precedence than many of the other examples explored. With a world class university and consequent intelligence and resources, a history of social justice initiatives, a variety of conflict histories yet to be reconciled, and the geographical placement within the urban influences of the Charlanta Corridor, this system has tremendous potential to develop this thinking of conservation as a creative social justice exercise. The Forest in fact is the legacy of this type of conservation-as-creative-expression and has all of the ingredients available to be exactly this again. By avoiding parts-based management for satisfaction or staying within the rigidity traps of doubling down on forestry-as-timber, the Forest can be valued appropriately as the 20,000-acre campus in the Forest/People system. Managing the Forest/People system for infinity

rather than efficiency (Sagoff, 2007) in this respect, is living up to the sentiment heard throughout this research: “Clemson is in the Forever Business.”

Conclusion

Forest/people

Positive Psychology (Seligman and Peterson, 2003) took the leap in the mid-1990s to say that psychology as a field has been really good at addressing problems and pathologies but has ignored the psychological development and function of individuals who have found peace and self-actualization. Positive Psychology seeks to encourage thriving and self-discovery by uncovering the mechanisms and pathways that were long ignored because the mental health maladies are so important and powerful, deservedly requiring attention. What this idea of conservation as a creative act of social justice sounds like to me is what positive psychology did to orthodox psychology. It focuses not on the maladaptation but the abilities. This may sound like anathema when faced with existential environmental threats, and in some situations it clearly is. But I think the natural resource allocation aspect of conservation is fairly well understood, at least as a foundation for us to proceed as humanity. What is far less understood is our capacity as society to understand the role conservation plays in ourselves becoming more human. Is there an empathic drive that we have that can only be expressed and exercised accurately through environmental activities or a culture developing conservation? It is more than an exercise in understanding ourselves, which is a worthwhile goal in itself; it is an understanding of the kind of place we want to live through the development of that discovery. The Forest/People system is an ideal opportunity for this exploration.

When one of the interviewees said that the CEF is just not critical to the core campus, that it is tangential to the "$500-million-dollar engine of the university," they were right. It is an outlier, but only because it has been positioned as a parts-approach of conservation to provide revenue through timber. This conservation-object idea involves turning what is possibly the greatest weakness of the university into possibly one of the greatest strengths, ironically making it more of what it already is: a discovery engine. This is Morton's Appearance and Essence discussion incarnate. The essence of the CU and the Forest/People system is in the future, but it will never be un-entangled from the appearance of the past. As a land grant, it has a task of utilizing discovery for the betterment of the people, and the essence is that it can be even more of this if the future isn't at minimum foreclosed upon or abdicated for development pressures. Ideally the CEF will be utilized for constant discovery of self within ever-expanding systems and scales.

What is the constitution of this place? Is it the social co-construction of asking people's opinions and verifying those against the artifacts we discovered and coming up with some ideas about proceeding? I don't think so, I think it is more than that. I think it is uncannily more than that. So much more that I think it is in a lot of ways a *being* about the Forest, not just perceptions about the Forest. There is no one way to capture all these ways of *being* about the Forest though and Morton teaches us that is the unsatisfying aspect about any meaningful object: it can never be fully experienced, never fully exhausted. This also is the definition of wonder though. Michael Pollan quotes "Huston Smith, the scholar of religion, [who] once described a spiritually "realized being" as

simply a person with “an acute sense of the astonishing mystery of everything” (Pollan, 2019). Maybe that’s what this Forest allows: a development of the astonishing mystery of how far this Forest stretches around the globe, how much of the trees’ pheromones become the air the people breathe, how the roots are growing on top of the bodies of those forgotten, how much potential the mere defiance of an oak offers in the face of development threats, or how families literally see the mountain bike trails as an extension of their home. Maybe the Forest is an extension of the people who lived here, who live here, and who will live here. Maybe it isn’t a Forest at all but rather a Forest/People system in time, space, and concept; a concept that allows for multiple ontologies to simultaneously exist outside the bounds of human misperception. Humans have attempted to shove the forest/people system into the time, space, concept realm that makes sense to us, but the forest/people system is happening anyway, regardless of the misperception of seeing it as one ontology. Allowing it to expand its trajectory rather than shoving it into human-oriented ontologies allows for literal *being,* as well as wonder and the ability for creation to occur as an extension of self.

The people that live in this system now are not the people of 1933 when this Forest was (re)built. The people then were, as Ben Robertson calls them, the people of Red Hills and Cotton (Robertson, 1942). They were people living in the apocalypse of mutant agriculture, farming if you were lucky and working as convict child labor if you were not. The people that live in this system now are not the people of 1850 – the captured Africans and their descendants – when this Forest existed instead as cotton fields. The people that live in this system now are not the people of 1760, trying to make

sense of two hundred years of colonial genocide, awaiting future denigrations; in a forest that was shifting away from the wildcrafted rambunctious garden and a place of game, to go to when the corn patch had a bad year. The people that live in this system now exist inextricably with the Forest. They live with the pollen and tree pheromones in the air they breathe, the lake water they drink from and where their wastewater dumps into, the re-populated deer, the forest trails, the university classes, and the timber. They, like people everywhere, are much more than their local geography but they also can't help but be forest/people. Accepting and allowing that rather than seeking to control it and bound it allows for discovery of the Forest and the collective self. It allows for a process of re-definition of Forest/People.

Originally, when this research project started, I wanted to apply a nonhuman personhood (NHP) framework on it and challenge our perceptions of the Forest against what the NHP purports in the literature. This is an exciting realm of Rights of Nature (RON) that is increasingly being explored and challenged around the world. Most famously in New Zealand and India, RON has shown remarkable progress in bypassing many of the paradoxes and contradictions faced here in this Forest as well as around the globe. I still think making the Forest a nonhuman person might be an interesting path to go and I think it could offer several advantages, including the important organizational effort of rallying a mindset about the Forest and to give people a vehicle to see the Forest as part of their world and community. But I think there are problems with using NHP as the silver bullet. Primarily, it is a perverse extension of the Exploitative Uncle thinking. While well-intentioned and further along on the spectrum, it is still a different flavor of

Fortress Conservation, making personhood the walls of the fortress rather than actual walls.

Including intentional ecology components in an RON approach to the Forest/People system could have a powerful organizational effect, giving concept to the re-envisioning effort. Further, with the long history of neglecting rights of the captured Africans, the Cherokee, and convict children, nonhuman personhood could be an innovative way to 'get in front of' the environmental injustices only now being recognized globally. If developed in coordination and collaboration with representatives and survivors of the conflict histories, developing a nonhuman personhood legal status for the Forest/People system could actually be one of the ways to reconcile these histories together, solve larger scaled problems, and simultaneously provide PES.

Regardless of whether an RON approach is taken, recognition of the Forest/People system is the ontological basis of the constitution of this place. It is the social co-construction mixed with the critical inquiry of OOO. Whichever way land management decisions of the Forest proceed from here – whether forestry-as-timber+multiple-use, or RON, or any combination within the spectrum – this research has demonstrated that the constitution of the place is a coupled nature and human system. Not acknowledging this system in decision making would progress the system into traps or tipping points along the panarchy model. To get out of these traps, to truly embody being forest/people, valuing the forest and the people as membership together is necessary, because that is the essence of what it really is anyway.

APPENDICES

Appendix A

Defenders of Wildlife Article

Defenders of Wildlife Article – 1 August 2020

From:
https://defenders.org/blog/2020/08/doughnut-economics-surviving-safe-and-just-space-humanity

Taylor Parker

All Posts
Hear From Our Experts
Defenders in Action
Wild Features
President's Corner
AUGUST 1, 2020

TAYLOR PARKER

Previously, we discussed how the **Earth is a spaceship carrying all of the many plants and animals**, that it is within the human species' unique responsibility to enact Intentional Changes to ensure our collected thriving, and **an expression of Earth Optimism is a great way to do that**. Here, the focus is on what that might actually look like using Oxford economist Kate Raworth's Doughnut. Again, please share your thoughts and questions in the comments!

Recently I was walking through the green and vibrant forest where I'm doing my research, bombarded by reminders of enslaved people, the decimation of indigenous tribes, a rampant virus of poverty, absent (stolen) topsoil, treeless hills, trails without deer tracks and a sky without birdsong. But then my focus shifted, and I was present again, looking at

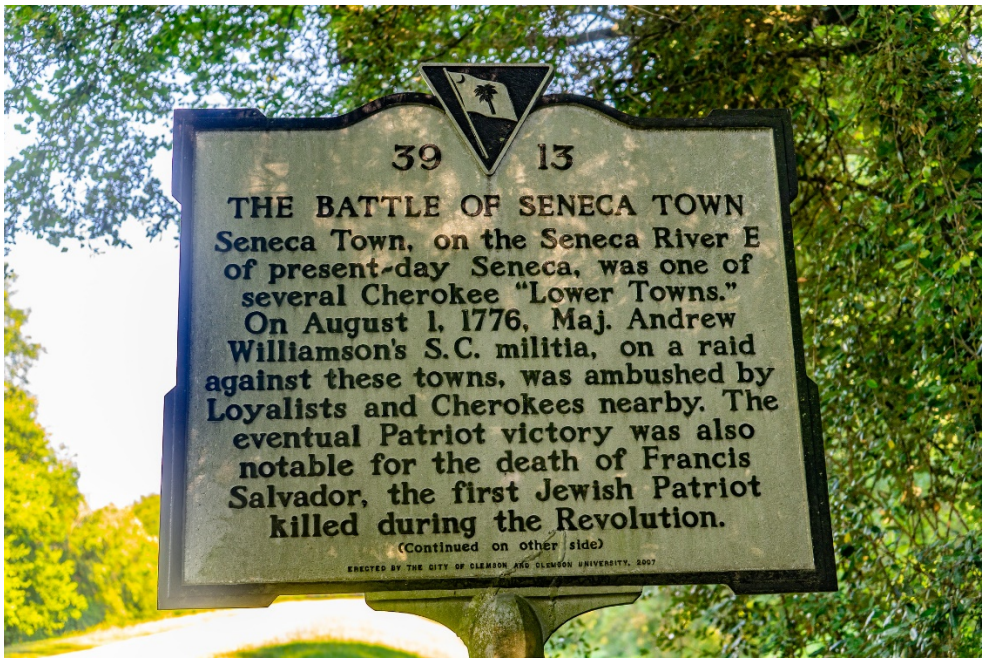
a dense verdant forest filled with early summer lightning bugs, cicada screams, box turtle crossings, bear scat and the biggest brightest orange chanterelles I've ever seen. The shift between past and the present created vertigo that I'm still trying to reconcile.

In 1775, the naturalist William Bartram trekked through South Carolina on his way from Georgia to the Appalachians, mapping and documenting plants, animals, and the landscape along the way. He happened to walk through the middle of what is now the Clemson Experimental Forest, the forest that I study for my doctoral research; so, I decided to recreate that part of his trek. In the southern half of the 17,500-acre forest, I followed his footsteps and walked 11 miles through mixed hardwood and pine forest, over creeks and fallen logs, passing folks on horseback, as well as mountain bikers hitting the trails. Bartram may have been looking out at, as Timothy Spira put it, a landscape of **"a diverse mosaic of prairies, savannas, and woodlands with widely spaced trees in park-like savannas"** where the native Cherokee lived, but since his trek, the land has been scarred by slavery agriculture and subsequent abject poverty, dependent almost exclusively on cotton that stripped the land of all its nutrients, creating a barren moonscape of Red Hills of clay. The healing only began in the 1930s with a massive

Clemson-led reforestation project that helped rejuvenate the Upstate of South Carolina. Since the early 1940s, the re-forested area now provides habitat for 100 tree species, myriad other plants and animals and the soil is in the slow reinvigoration process by the perpetual leaflitter and fungus work. And one of the things I'm discovering in my research is how much the reforestation revitalized the economy and society.

As I walked through these trees that are the result of this reforestation 80 years ago, the world outside of the Forest was experiencing the strain and pressure of the murders of George Floyd, Breonna Taylor and Ahmaud Arbury, against the backdrop of an exploitative system. These incidents fresh in my thoughts, I was mindful that I was walking over the ghosts of the cotton plantations that kept enslaved people as capital, built on the extermination of the native Cherokee that lived here. Walking South to North, I walked over the history of four cotton plantations near the site of the Cherokee village, desecrated under the artificially created Lake Hartwell. With each step, I was walking over the experiences of enslaved people and displaced native people while within a half-day drive of Breonna's and Ahmaud's murders.


Fort Rutledge
The Battle of Esseneca Town
South Carolina
NATIONAL HERITAGE CORRIDOR
Visit our Heritage Corridor landscapes from the Blue Ridge Mountains to the Charleston Lowcountry - and discover South Carolina's history, people and places.
www.sc-heritagecorridor.org
Esseneca Town, located along the Seneca River, was a Cherokee "Lower Town." On August 1, 1776, Major Andrew Williamson's S.C. militia, on a raid against these towns, was ambushed by Loyalists and Cherokees. In that fateful conflict, Francis Salvador became the first Jewish American to be killed in the Revolution.
In September 1776, soon after the Battle of Esseneca in present-day Oconee County, Williamson retreated to build a log fort. Williamson at Esseneca encamped with a force of 2,300 and left 300 men garrisoned at Fort Rutledge during the three month campaign against the Cherokee nation.
In 1780, Fort Rutledge and its 300 men surrendered to Loyalists. In 1908 the concrete block monument was built by the Trustees of Clemson Agriculture College at the request of the Daughters of the American Revolution.
The exact location of Fort Rutledge is unknown. Some say it is underwater in Hartwell Lake. Others speculate that it is where Tillman Hall now stands on the Clemson University campus.
CLEMSON
HISTORIC PROPERTIES

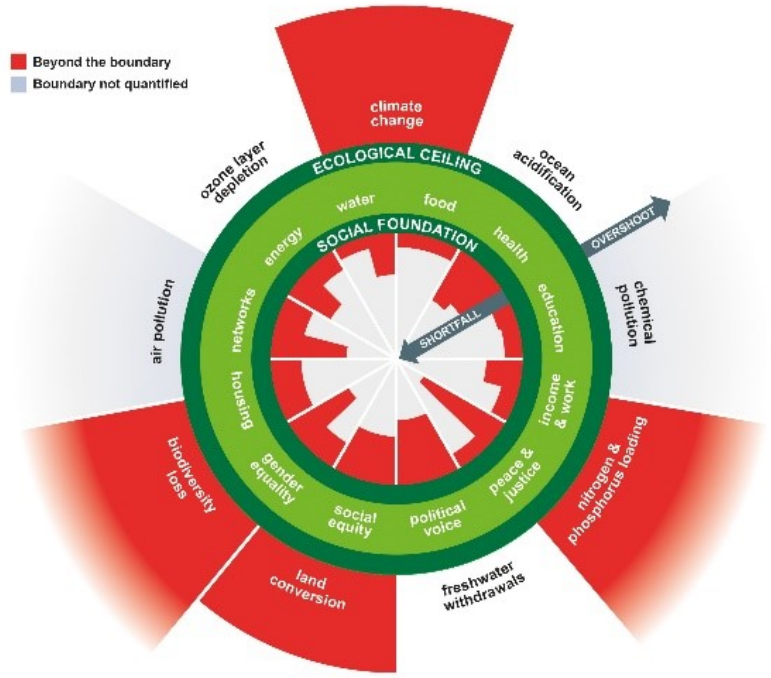

39 13
THE BATTLE OF SENECA TOWN
Seneca Town, on the Seneca River E of present-day Seneca, was one of several Cherokee "Lower Towns." On August 1, 1776, Maj. Andrew Williamson's S.C. militia, on a raid against these towns, was ambushed by Loyalists and Cherokees nearby. The eventual Patriot victory was also notable for the death of Francis Salvador, the first Jewish Patriot killed during the Revolution.
(Continued on other side)
ERECTED BY THE CITY OF CLEMSON AND CLEMSON UNIVERSITY, 2007

I sat down mid-trek to re-fuel and checked the email on my phone. In response to the current protests and decades-long social pressures, Clemson University informed us students that the Board of Trustees had an emergency meeting that morning and decided to change the name of the Calhoun Honors College and voted to recommend the name change of Tillman Hall. The fight for this action started long before I started my program. Still, it felt special to witness this historical change while experiencing the forested results of a different historical change almost a century ago.

One of the scholars I've come across in my studies, Dorceta Taylor, explores the idea - in her remarkable *The Rise of the American Conservation Movement: Power, Privilege, and Environmental Protection* - that American history is Environmental History. There are no two ways about it: they're intertwined. You can't study one without the other and we don't have the luxury of seeing the two as separate.

If they're intertwined, what do we do about it? How do we use this information? How do we make sense of these experiences as conservationists, as environmentally-concerned people, as dedicated, angry, and empathetic people? I'd like to believe that it is the empathy

that connects the concerns with the environment with the concerns for equality and civil justice. Oxford economist Kate Raworth shows us that it is far more practical though – both our environmental and human concerns create the literal boundaries within which we must proceed.



The Doughnut of social and planetary boundaries (2017) Raworth's Doughnut shows the upper and lower boundaries of the Safe and Just Space for Humanity.
After decades of practical work with the United Nations, Oxfam and Oxford, Raworth developed her Doughnut Economics theory. It's easiest to show it rather than explain it, but there are 17 criteria that need to be met to keep our society functioning at minimum, thriving if possible. Within the upper and lower limits is where she finds us our Safe and Just Space for Humanity. By addressing the 9 environmental concerns and the 17 critical human needs, we have empirical evidence for the limits of the Spaceship we're all sharing.

I find this work revolutionary because it actively takes the guesswork of how to live safely together and applies researched and rigorous scientific approaches in a way that simply explain our needs. It attempts to quantify humanity's needs and qualitatively improve life/society.

Understanding that her idea is utterly unrealistic without the active participation of the people that it impacts, Raworth recommends an equitable dialogue throughout the social strata. She helps us by proposing that we ask the following questions in each locale that is attempting to address these difficult issues simultaneously:

1. What would it mean for the local people to thrive?
2. What would it mean for the local people to thrive in their natural habitat?
3. What would it mean for the local people to respect the well-being of the people worldwide?
4. What would it mean for the local people to respect the health of the whole planet?

These questions seem simple, but the results from the exercise of asking them facilitate unexpected discovery. With the Doughnut in mind, asking these questions and integrating the results helps us reconcile the paradoxes of addressing justice and sustainability. They allow us to create our path forward on the Spaceship we all share.

In my current research, when I ask people why this forest matters or why should we save endangered species, one of the things I hear consistently is: it isn't rocket science. That's an interesting and coincidental phrase to hear right now. At 2:30 pm EST on the day that the George Floyd protests erupted in Minneapolis, SpaceX and NASA

launched the Falcon 9 rocket carrying the Crew Dragon spacecraft to the International Space Station and returned the booster for re-use. As we fight in our science, in the courts and in the streets to fix our environmental problems and the injustices of discrimination, poverty and political voice, I agree that it is not rocket science: it's harder. No offense to my friends in engineering and physics or those at NASA that I've idolized since childhood, but our social issues deal with invisible values, clashing opinions, long-held beliefs and nuanced perspectives that change in sometimes unpredictable ways. Gravity doesn't do that.

We can fire rockets at the International Space Station, but as a society we haven't figured out how to simultaneously honor the enslaved people with the life-giving forests built on top of their memories. We haven't figured out how to keep the red wolf from extinction, keep George Floyd alive or provide drinkable water in Flint, Michigan. These problems are deceptive because they seem easy but have proven harder than rocket science. Acknowledging the intertwined nature of Raworth's Doughnut

Economics can help us understand this task and give us a toolbox with which to keep our shared Spaceship, this planet we all inhabit, Safe and Just for Humanity.

← Healing the Biosphere Q&A with SE Program Director Ben Prater →

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Taylor Parker is a doctoral candidate at Clemson University looking at the role that the school's 18,000 acre forest plays in the socio-environmental system of Upstate South Carolina and the Southeast in general. After working on coastal wetland habitat restoration in Southern California for over a decade, Taylor moved around the globe as a research technician before finding his way to Clemson University to study in Dr. Betty Baldwin's Conservation Social Science lab. Currently a producer for the conservation podcast Pelecanus, Taylor is also a photographer trying to use art and storytelling to explore conservation as an expression of humanity.

Appendix B

Artifacts

The artifacts include documents, photos of items from the archives, and a spreadsheet of the regulations that may pertain to the CEF. Listed below are hyperlinks to the photos to some of these documents as well as a screen shot to the spread sheet. I will make these available in a separate file.

CU Library Archives of Marlin Bruner Files:

https://www.flickr.com/gp/taylor562/76ch11

CU Library Archives of George Aull Files:

https://www.flickr.com/gp/taylor562/G3p7oW

Regulations

Regs	Summary
Bankhead Jone Farm Tenant Act (BHJFT Act)	1. to develop a program of land conservation and land utilization 2. to correct maladjustments in land use 3. assist in controlling soil erosion, reforestation, preserving natural resources, protecting fish and wildlife, developing and protecting recreational facilities, mitigating floods, preventing impairment of dams and reservoirs, developing energy resources, conserving surface and surface moisture, protecting the watersheds of navigable streams, and protecting the public lands, health, safety, and welfare, but not to build industrial parks or establish private industrial or commercial enterprises 4. To sell, exchange, lease, or otherwise dispose of, with or without a consideration, any property so acquired, under such terms and conditions as he deems will best accomplish the purposes of this title, but any sale, exchange, or grant shall be made only to public authorities and agencies and only on condition that the property is used for public purposes 5. Provided, however, That an exchange may be made with private owners and with subdivisions or agencies of State governments in any case where the Secretary of Agriculture finds that such exchange would not conflict with the purposes of the Act, and that the value of the property received in exchange is substantially equal to that of the property conveyed. 6. The Secretary may recommend to the President other Federal, State, or Territorial agencies to administer such property, together with the conditions of use and administration which will best serve the purposes of a land-conservation and land-utilization program, and the President is authorized to transfer such property to such agencies. 7. to cooperate with Federal, State, territorial, and other public agencies and local nonprofit organizations in developing plans for a program of land conservation and land utilization or plans for the conservation, development, and utilization of water for aquacultural purposes, to assist in carrying out such plans by means of loans to State and local public agencies and local nonprofit organizations designated by the State legislature or the Governor, to conduct surveys and investigations relating to conditions and factors affecting, and the methods of accomplishing most effectively the purposes of this title, and to disseminate information concerning these activities. 8. To provide, for the benefit to rural communities, technical and other assistance and such proportionate share of the costs of installing measures and facilities for water quality management, for the control and abatement of agriculture-related pollution, for the disposal of solid wastes, and for the storage of water in reservoirs, farm ponds, or other impoundments, together with necessary water withdrawal appurtenances, for rural fire protection, as is determined by the Secretary to be equitable in consideration of national needs and assistance authorized for similar purposes under other Federal programs.

Morrill Act	1. Land-Grant College Act of 1862 2. provided grants of land to states to finance the establishment of colleges specializing in "agriculture and the mechanic arts." 3.granted each state 30,000 acres (12,140 hectares) for each of its congressional seats 4. The military training required in the curriculum of all land-grant schools led to the establishment of the Reserve Officers' Training Corps
Public Law 84-237	1. That, notwithstanding the provisions of subsection (c) of section 32 of the Bankhead Jones Farm Tenant Act, as amended (7 U. S. C. 1011 (c)), the Secretary of Agriculture is authorized and directed to release on behalf of the United States with respect to lands designated pursuant to section 2 hereof, the conditions, contained in two deeds, both dated December 22, 1954, conveying certain submarginal lands in Anderson, Oconee, and Pickens Counties, South Carolina, to Clemson Agricultural College of South Carolina, which require that the lands conveyed be used for public purposes and provide for a reversion of such lands to the United States if at any time they cease to be so used 2. The Secretary shall release the conditions referred to in section 1 only with respect to lands covered by and described in an agreement or agreements entered into between the Secretary and the college in which the college, in consideration of the release of said conditions as to such lands, agrees a. that all proceeds from the sale or exchange of such lands shall be used by the college for the acquisition of lands within the exterior boundaries of the project or for the development or improvement of lands within the project; b. that any lands acquired by the sale or exchange of the lands covered by such agreement shall become a part of the project established on the lands conveyed by the two deeds referred to in section 1 and shall be subject to the conditions with respect to the use of such lands for public purposes contained in such deeds; c. that all proceeds from the sale, lease, or other disposition of the lands covered by such agreement shall be maintained by the college in a separate fund and that the record of all transactions involving such fund shall be open to inspection by the Secretary

Public Law 84-352	1. That the Hatch Act of March 2, 1887, relating to the appropriation of Federal funds for the support of State agricultural experiment stations, is hereby amended to read as follows:2. It is the policy of Congress to continue the agricultural research at State agricultural experiment stations which has been encouraged and supported by the Hatch Act of 1887, the Adams Act of 1906, the Purnell Act of 1925, the Bankhead-Jones Act of 1935, and title I, section 9, of that Act as added by the Act of August 14, 1946, and Acts amendatory and supplementary thereto, and to promote the efficiency of such research by a codification and simplification of such laws3. As used in this Act, the term 'State agricultural experiment station' means a department which shall have been established, under direction of the college or university or agricultural departments of the college or university in each State4. to promote the efficient production, marketing, distribution, and utilization of products of the farm as essential to the health and welfare of our peoples and to promote a sound and prosperous agriculture and rural life as indispensable to the maintenance of maximum employment and national prosperity and security.5. It is also the intent of Congress to assure agriculture a position in research equal to that of industry, which will aid in maintaining an equitable balance between agriculture and other segments of our economy.6. It shall be the object and duty of the State agricultural experiment stations through the expenditure of the appropriations hereinafter authorized to conduct original and other researches, investigations, and experiments bearing directly on and contributing to the establishment and maintenance of a permanent and effective agricultural industry of the United States,7. Out of such sums each State shall be entitled to receive annually a sum of money equal to and subject to the same requirement as to use for marketing research projects as the sums received from Federal appropriations for State agricultural experiment stations for the fiscal year 1955, except that amounts heretofore made available from the fund known as the 'Regional research fund, Office of Experiment Stations' shall continue to be available for the support of cooperative regional projects8. The State agricultural experiment stations are authorized to plan and conduct any research authorized under section 2 of this Act in cooperation with each other and such other agencies and individuals as may contribute to the solution of the agricultural problems involved, and moneys appropriated pursuant to this Act shall be available for paying the necessary expenses of planning, coordinating, and conducting such cooperative research9. Nothing in this Act shall be construed to impair or modify the legal relation existing between any of the colleges or universities under whose direction State agricultural experiment stations have been established and the government of the States in which they are respectively located. States having agricultural experiment stations separate from such colleges or universities and established by law, shall be authorized to apply such benefits to research at stations so established by such States10. the rest is highly detailed regarding disbursement of funds
McIntire Stennis Act	The purpose of McIntire-Stennis funding is to increase forestry research in the production, utilization, and protection of forestland; to train future forestry scientists; and to involve other disciplines in forestry research.

Thomas Green Will	1. on the 14th day of August, 1883, execute my last will and testament wherein I sought to provide for the establishment of a scientific institution upon the Fort Hill place, and therein provided what sciences should be taught in said institution2. whereas, I am now satisfied that my intention and purpose therein may be misunderstood as intending that no other studies or sciences should be taught in said institution than those mentioned in said will, which was not my purpose or intention3. Feeling a great sympathy for the farmers of this State, and the difficulties with which they have had to contend in their efforts to establish the business of agriculture upon a prosperous basis, and believing that there can be no permanent improvement in agriculture without a knowledge of those sciences which pertain particularly thereto, I have determined to devote the bulk of my property to the establishment of an agricultural college upon the Fort Hill place4. This institution, I desire, to be under the control and management of a board of trustees, a part of whom are hereinafter appointed, and to be modeled after the Agricultural College of Mississippi as far as practicable5. My purpose is to establish an agricultural college which will afford useful information to the farmers and mechanics, therefore it should afford thorough instruction in agriculture and the natural sciences connected therewith 6. it should combine, if practicable, physical and intellectual education, and should be a high seminary of learning in which the graduate of the common schools can commence, pursue and finish the course of studies terminating in thorough theoretic and practical instruction in those sciences and arts which bear directly upon agriculture, but I desire to state plainly that I wish the trustees of said institution to have full authority and power to regulate all matters pertaining to said institution — to fix the course of studies, to make rules for the government of the same, and to change them, as in their judgment, experience may prove necessary, but to always bear in mind that the benefits herein sought to be bestowed are intended to benefit agricultural and mechanical industries7. for the purpose of thereupon founding an agricultural college in accordance with the views I have herein before expressed, (of which the Chief Justice of South Carolina shall be the judge), then my executor shall execute a deed of the said property to the said State, and turn over to the same all property hereinafter given as an endowment of said institution to be held as such by the said State so long as it, in good faith, devotes said property to the purposes of the donation8. provided, that said school or college shall be for the benefit of the agricultural and mechanical classes principally, and shall be free of costs to the pupils, as far as the means derived from the endowment hereinafter provided and the use of the land may permit. 9. The desire to establish such a school or college as I have provided for in my said last will and testament, has existed with me for many years past, and many years ago I determined to devote the bulk of my property to the establishment of an agricultural school or college. To accomplish this purpose is now the one great desire of my life.10.
Purnell Act	An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts…
Adam Act	Extension of the Hatch Act

Smith–Lever Act of 1914	1. The Smith–Lever Act of 1914 is a United States federal law that established a system of cooperative extension services, connected to the land-grant universities, in order to inform people about current developments in agriculture, home economics, public policy/government, leadership, 4-H, economic development, coastal issues (National Sea Grant College Program), and many other related subjects 2. It helped farmers learn new agricultural techniques by the introduction of home instruction 3. The appropriation for cooperative extension is shared between the states based on the following formula. Once the historic amount that has been allocated for "special needs" programs is set aside[1] and an additional 4% is reserved for USDA administrative costs, the remaining funds are allocated:[2] 20% shared by all States in equal proportions; 40% shared in the proportion that the rural population of each bears to the total rural population of the several States as determined by the census; 40% shared in the proportion that the farm population of each bears to the total farm population of the several States as determined by the census 4. each state must match its Federal cooperative extension funds
Hatch Act	1. gave federal funds, initially of $15,000 each, to state land-grant colleges in order to create a series of agricultural experiment stations,2. as well as pass along new information, especially in the areas of soil minerals and plant growth3. State agricultural stations created under this act were usually connected with those land-grant state colleges and universities founded under the Morrill Act of 18624. Many stations founded under the Hatch Act later became the foundations for state cooperative extension services under the Smith–Lever Act of 19145. Congress amended the act in 1955 to add a formula that uses rural and farm population factors to allocate the annual appropriation for agricultural experiment stations among the states. Under the 2002 farm bill (P.L. 107–171, Sec. 7212), states will continue to be required to provide at least 100% matching funds6. On average, Hatch Act formula funds constitute 10% of total funding for each experiment station.
Endangered Species Act	Protection of listed species and their habitats

ACOE – Easement on Shoreline	1. ...4. Proprietary Jurisdiction. No other Federal agency has land ownership or jurisdiction over the administration of the Hartwell Lake SMP. The USACE administers this SMP and other applicable Army Regulations on Hartwell Lake. However, federal, state, and local laws are applicable to all Hartwell Lake land and water. While the USACE does not have the authority to enforce other federal, state, or local agencies regulations which apply to Hartwell lands and waters, the USACE cooperates with these agencies in their respective enforcement responsibilities specific to Hartwell land and water. 2. Hartwell Lake is a large, multi-purpose reservoir, constructed between 1957-1963 on the Savannah River. Authorized purposes are flood control, water quality, water supply, hydroelectric power, recreation, navigation, and fish/wildlife. The USACE Savannah District is responsible for managing and maintaining a balance between these often competing demands on the resource. 3. Preparation of the General Development Plan and later the Land Use Plan was initiated in 1961, following impoundment of the Hartwell Reservoir. Development of the Land Use Plan included inspection of the shoreline and selection of lands for public recreation use. A moratorium on accepting applications for lakeshore use permits was not declared during these developmental stages, and permits were issued in accordance with the Land Use Plan until 1974 4. Prior to this in January 1974, development of the Lakeshore Management Plan (LMP) began in accordance with the proposed regulations. The only changes made to the shoreline allocations were to change the shoreline adjacent to Clemson University to "Protected Lakeshore Area" at the University's request and to change allocations to "Protected Lakeshore Area" immediately adjacent to roads, bridges, environmentally significant areas, and some recreation areas. 5. Limited Development Areas (LDA). Approximately 50 percent of the shoreline is allocated under this category and is shown in green on allocation maps. Private docks and certain land-based activities may be authorized in these areas, provided other conditions outlined in this SMP are met 6. Protected Shoreline Areas. Approximately 26 percent of the shoreline is allocated under this category and is shown in yellow on allocation maps. Protected Shoreline Areas reduce conflicts between public and private use and maintain aesthetics, fish and wildlife habitat, cultural or other environmental values. Additionally, shorelines subject to extensive public use are in this category. 7. Public Recreation Areas. Approximately 24 percent of the shoreline is allocated under this category and is shown in red on allocation maps. These areas are designated for federal, state, and other public use, including commercial concessions. 8.
Clean Water Act	Relates to the lakes and their protection

Mission Statement of CEF	1. The Clemson Experimental Forest's 17,500 acres are dedicated to education, research and demonstration in order to better understand and manage forest resources for the benefit of society. These essential resources include clean air, clean water, pleasing aesthetic qualities, abundant wildlife, protection of species and habitat diversity, recreation opportunities, along with commodity products from the forest. The forest is managed strictly for perpetual sustained or improved yield of these products. The Clemson Experimental Forest personnel, equipment, supplies, roads, recreation facilities and maintenance are solely supported by revenue generated by the Forest.2. The prime directive for the forest is to be a well-managed, self-sustaining, ecologically healthy, living laboratory, classroom and recreational resource for the benefit of the university, commerce and citizenry of South Carolina, vouchsafed with a mandate to protect and promote in perpetuity the forest as an irreplaceable educational, environmental, scientific and social asset.3. The Clemson Experimental Forest is a national exemplar of a teaching, research and public-service resource for a top-tier university.4. The forest enhances Thomas Green Clemson's vision of the university as "high seminary of learning."5. The forest leads by example, developing, evaluating and demonstrating best scientific natural resource management practices.6. The forest serves as a rejuvenating sanctuary, revitalizing the bond between people and the natural environment and benefiting the community at large.7. The forest will generate revenues from fees, grants, endowments and forest products sales, enabling it to be self-supporting.8. The forest is a multipurpose greenspace, offering a diversity of opportunities and benefits to students, faculty and staff and the public.9. The forest is managed consistent with the intent of it being the nation's gift to Clemson University, showing the federal government's faith and confidence in the university to use the land for teaching, research and service.10. This working forest is to be used to meet current teaching, research and public-oriented needs and held in trust to meet the needs of future generations.The forest holds a unique status, serving as a historical and scientific repository of regional land-use and research. It is an invaluable evolving record for present and future generations of scholars and public-policymakers.
Potential other regulations	
Section 4, 1944 Flood Control Act, as amended (USC460d).	
The National Environmental Policy Act of 1969, (42 U.S.C. 4321 et seq.).	
Section 404 of the Clean Water Act of 1977, (33 U.S.C. 1344).	
Title 36, Chapter III, Part 327, Code of Federal Regulations, Rules and Regulations Governing Public Use of Water Resources Development Lakes Administered by the Chief of Engineers.	
Executive Order No. 12088, Federal Compliance with Pollution Control Standards.	
Section 1134(d) Water Resources Development Act of 1986, Public Law 99-662, 100 Stat. 4251 Executive Order 11990, Protection of Wetlands	
Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).	
National Historic Preservation Act of 1966, as amended (16 USC 470 et seq.)	
Endangered Species Act of 1973, as amended. Federal Insecticide, Fungicide, and Rodenticide Act of 1972, as amended).	

Appendix C

Dead Ends

Research attempted but failed

Several research attempts were tried but did not come to fruition for a variety of reasons. I include them here to be transparent about what we tried but also to show what may have promise in the future under different circumstances.

Originally, I had intended to do what I called interventions and what is considered a Delphi method of data triangulation. These didn't occur for a variety of reasons, mostly logistical. The interventions included the attempt to field-test an ArcGis Survey123 smart phone application distributed to professors to automatically link back to the land manager's database information about research and education activities. This was in direct response to hearing land manager and decision maker's concerns about not knowing how the Forest is used as an academic asset. The other intervention was an attempt to develop an augmented reality interface on their smart phones for Forest users to literally show them histories of the Forest, directions of trails in the Forest, and livestream connection to signed-on other users for the sake of safety and comprehensive real-time knowledge of activities. This was in direct response to listening to users explain that they get lost, the fear of losing their friends or family, and a lack of knowledge of the Forest origins. Both of these interventions were attempted. I became educated in the necessary software and certified in the use, and I actually built basic prototypes, but the implementation proved to be a much larger project that was not critical to the discovery component of this project.

For the sake of further verification strategies, I originally intended to do a modified Delphi method that would share my preliminary results back out with the social actors I interviewed. However, as the research grew the time frame shortened and the logistics of sending information back out became unfeasible. This is potentially a limitation of the research but not a prohibitively difficult challenge as this research has become more of an ethnographic development of a constitution of a place rather than a social co-construction of meaning.

Additionally, as the project grew, several other ideas also occurred to gather more data but also create opportunities for procedural justice activities among the social actors. As discussed in the reflexivity, it became clear there was a data gap and gathering information from descendants of enslaved people, those resettled from here, and the convict labor appeared necessary. Early on in the research and after a discussion with an anthropologist, I was discouraged from interviewing descendants of the Cherokee with the rationale that they would not provide much useful information to how the land exists now and that searching out folks that were resettled might be more useful for seeing how the land was in the 1930s. As the original intention was seeking the purpose of the Forest now, that logic made sense and I did not pursue it. However, near the end of the project I realized I needed to understand what the Forest is before understanding the purpose and to understand the ontology, I would need to understand how the history contributes to the constitution. This led me to reach out to people to search out descendants of enslaved people. I talked to two people but they either didn't want to speak to me or they claimed to not have relevant information. I did eventually interview a Cherokee Nation Member and that discussion proved extremely fruitful.

Similarly, after learning that there might be precedent through other Bankhead Jones Farm Tenant Act properties, I tried many times to reach out to US Department of Agriculture representatives over a period of 4 months. However, this was during COVID lockdown and I never received a response from anyone.

Lastly, near the end of the research and with the increased demand for access that occurred during the combination of COVID restrictions and the tornado that made much of the Forest unsafe, I saw that informal connections between management and community could be useful. I wanted to develop a public, community art show to pull together members of the community and decision makers to facilitate informal dialogue about the Forest and potential data gathering opportunities for co-constructed constitution development. After several attempts at coordinating with the CU Art Department and a couple rejected proposals because of COVID restrictions, this idea never materialized. I still think it might be a good way to involve the community as a start in a new transformation process.

Appendix D

Expected and Found List

EXPECTED-FOUND
• Sprawl pressure is real on desire to develop in the Forest, forcing management decisions to make neoclassical economic decisions of how to cost the Forest (caveat: sprawl pressure in reference to the region was not expected)
• There is a confrontation of ethics, represented as the Big E Ethic of timber harvest, and the little e ethics of other uses – this manifests as an adhocracy
• Development and loss of land is one of the bigger fears of the community
• The BOT doesn't want to tie their hands
• 'Uniqueness' of CEF is size of forest and proximity to campus
EXPECTED-NOT FOUND
• That ethic of land management would change under different offices responsible for managing it
• Conflict among users
• The Cherokee
○ I expected people to talk about the Cherokee but almost no one did
○ people did talk about the captive africans, the poverty
• I expected conflict but there were few, if any, recreational conflicts (the conflicts are victims of the system, not causes)
• I expected that the term 'development' in the eyes of CU meant development of say a WalMart. What we found was that when they speak of development, they mean development of CU things like housing, academic buildings, etc.
• I expected recreationalists, faculty, and others in non-management to be anti-tree-cutting. I don't think that's the case. I think sometimes there is a NIMBYism sometimes when somebody's favorite trail is disrupted and I think there are genuine concerns when someone sees a cut that they think is the precursor to a development. But I don't think tree-cutting in general is opposed, I think people are pretty understanding of it – especially once they understand the rationale behind it.
○ Caveats:
○ Further explanation: I think development is the thing people are terrified of.
▪ evidence:
• uli
• Daniel High School incident
○ "I don't know if you were here when they proposed putting Daniel Highschool in the middle of the trails- that didn't go well at all. I think, now- I won't blame it all on social media- But, I think now, if you try to do anything out there where people feel like they're losing their right or whatever their hobby is, I think you're going to see a lot of kick back- a lot of petitions."
NOT EXPECTED-FOUND
• If we violate the BJFT Act, it would set a precedent nationally
• The role of Sprawl in the micropolitan in the larger Charlanta Corridor
• Forest is being prescribed by doctors to lower cortisol, blood pressure
• Panarchy
• The full history of how the Forest came together
• All the unsolicited ideas for the future of the forest – almost everyone had an idea and many of them were different
• Few people want development
• Adhocracy in all but timber decisions
• BOT sees this land as sacred
• Clemson is in the Forever Business
• Almost everyone I talked to outside of the system was surprised by the land and this project (Cherokee, planning assoc, uni forest assoc, etc)
• very diverse ontological differences by various social actors – literally seeing a forest as a completely different thing
• The importance of the land grant – people see this as very important – it is a commitment to the people of the SC, to society
• palimpsest
○ to think in patterns:
▪ where the university is is where people grew ag and where plantations were and also where the Cherokee where – there's a reason for that
• "patterns of human existence and there was something about Our history that said okay if a place like Clemson is is kind of steeped in its traditions, but those Traditions may be placed on us and favorably biased, you know so if the bottoms and where the river once was is the blackest soil in the area, if that's been the Bread Basket for the community for a long time"
NOT EXPECTED-NOT FOUND
• I did not expect to find a strong preservationist mindset and I don't think we found that.
○ There are definitely a couple outliers
▪ a couple people wanted large chunks completely preserved
▪ a couple people wanted certain ecosystem services preserved
▪ caveats:
• just because we didn't find this doesn't necessarily mean that people don't already think it is preserved. There is a possibility that recreationalists just assume it is all already preserved.

Appendix E

List of Ideas

Ideas for CEF identified by others:

- Alternative payment structure
  - Carbon Market
  - Endowment
- Research
  - Longitudinal study of….forest living, rural forest living, etc
  - "if they had started in the 1950s and said every year, there's going to be a bird survey in the same effing place. Every year were or every five years were going to return to this permanent plots and, and do 10 hectare plots and do shrubs and herbs and trees. It would be an ecological gold mine!"
  - A research epicenter
  - Tree canopy crane
  - SES - town/gown
  - LIDAR
- Art
  - Art throughout the Forest
- AgroEcology/Forestry
  - bamboo
  - Veta La Palma
  - Fisheries
  - Silvopasture
  - mast trees
  - fruit trees
  - wildcrafted
- Harvest
  - Idea of cutting and selling timber directly, rather than bringing in a contractor
- Design
  - Low-hanging fruit of design to experiment and see what works for larger stuff
    - lake walkways
    - a trail connecting everything
  - emancipation/community support through redesign
    - bikes, parking spaces, showers, lockers, community gardens, social justice recognition
- Tourism
  - Conference center in the forest
  - vacation bungalows
- Education
  - nature center
  - Every student who graduates from CU should know the CEF

        - an online class – 'a frickin swim test' to know that "Clemson has a school forest… hell, at a land grant, it would be appropriate."
    - But other scenarios, what about a nature center being at the Horseshoe?
    - " little info recordings, and in order to play the recording, you have to crank a box. They are relatively unimposing. They blend in- it's active and engaging and you could go and find all those things. I would rather see the invitation to use be more along those lines than a building or structure. I think that the idea that a building brings safety in the woods is more of a pandering. To build buildings in those environments is to contribute to the sense of uneasy or helplessness instead of forcing people to access their resources. Educate, empower, give skills…"
- Preservation
    - State park
- Heritage
    - Bartram and Michaux trail
- Recreation
    - nationally-renowned mountain bike tracks
    - rope course
    - obstacle course
    - paintball
- Cherokee
    - wildcrafted
- Comparison
    - Replicate what Duke is doing
    - Replicate what Calhoun is doing
- Process:
    - any stated commitment whatsoever from the Board of Trustees that they want to keep the land and not develop it would be welcome

My ideas

- Rewilding
    - Red wolf high fence area
    - A preserve like White Oaks
- Alternative protection structure
    - Non-human personhood
- Experiential
    - AR/VR
- Spiritually
    - what the hell does that mean?
    - this could be an opportunity to try and define what the spiritual value of nature means
        - do a GIS study of the churches surrounding
        - do a social co-construction of what spiritual means to forest/people

Appendix F

Photos of People and Activities in the Forest

Photo 1: A group of 5th graders from a local school visit the Forest

Photo 2: 5th graders from a local school returning to their buses

Photo 3: Dr. Betty Baldwin teaching an undergraduate class in the Forest

Photo 4: Students cross a bridge in the Forest

Photo 5: Garbage collected from the Forest

Photo 6: Vandalism on one of the interpretive signs in the Forest

Photo 7: A father teaching his daughter to throw a hatchet

Photo 8: A woman preparing her horse for a ride in the Forest

Photo 9: Horseback riders setting off for a ride in the Forest

Photo 10: Hunters in the Forest

Photo 11: Educator and naturalist, James Wilkins, after a successful day teaching kids

Photo 12: An demonstration at SlabFest, an event selling harvest from the Forest

Photo 13: Horseback riders getting ready for the day in the Forest

Photo 14: Mules in the Forest

Photo 15: James Wilkins, the Forest naturalist and educator, leading a Full Moon nature walk

Photo 16: Mountain bike riders after their ride

Photo 17: Paddlers setting out in the Forest's lakes

Photo 18: A warrior princess after visiting the Clemson Bird and Naturalist club in the Forest

Photo 19: Members of the Clemson Forestry Club demonstrating sawing to a group of kids

Photo 20: The shotgun park in the Forest

Photo 21: A CU researcher collecting data from a mountain biker

Photo 22: Timber harvest activities in the Forest

Photo 23: A traffic jam in the Forest after parking spots filled up

Photo 24: A trash cleanup event conducted in the Forest, organized by CU Outdoor Recreation

Photo 25: A CU undergraduate student mountain biking in the Forest

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